National Park Service
U.S. Department of the Interior

Timucuan Ecological and Historic Preserve
Florida

Kingsley Plantation Barn

Historic Structure Report



Cultural Resources, Partnerships and Science Division

Interior Region 2: South Atlantic-Gulf

Kingsley Plantation Barn

Timucuan Ecological & Historic Preserve

Historic Structure Report

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About the front cover: Kingsley Plantation Barn, view from northeast, November 2023.

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Spanish-American War Battery

Timucuan Ecological & Historic Preserve

Historic Structure Report

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Foreword

We are pleased to make available this Historic Structure Report for the Kingsley Plantation Barn at Timucuan Ecological and Historic Preserve, part of the ongoing effort to provide comprehensive documentation for the landscapes and historic structures of the National Park Service. The success of this project is due in large part to the staff of Timucuan Ecological and Historic Preserve; the park has long sought to protect and interpret these important resources. Morgan Baird, Exhibit Specialist for Timucuan Ecological and Historic Preserve and COR, has been instrumental in providing support for this project. We would also like to thank Steven Kidd, Chief of Science and Resource Management, for his guidance at the park.

We would like to thank the following for their thorough research, rigorous existing conditions documentation, and carefully considered recommendations: from Liz Sargent HLA, Liz Sargent, Project Manager; Nell Boeschenstein, Researcher/Historian; and Leonard Kliwinski, Copy Editor; from Wiss, Janney, Elstner Associates, Inc., Deborah Slaton, Historian/Conservator; Tim Penich, Historical Architect; Nicole Declet, Architectural Associate and Conservator; Heba Elsayed, Project Engineer; and Krysten Pazik, Engineering Associate. The Park would also like to thank Interior Region 2 Historical Architect Megan Jenkins for her work as subject matter expert and the primary NPS regional liaison on this project.

Chris Hughes
Superintendent
Timucuan Ecological and Historic Preserve
National Park Service

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National Park Service

Cultural Resources, Partnerships and Science Division, Interior Region 2: South Atlantic-Gulf

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Management Summary

Management Summary

At the request of the National Park Service (NPS), Liz Sargent Historical Landscape Architect (LSHLA), and its subconsultant, Wiss, Janney, Elstner Associates, Inc. (WJE), have developed this Historic Structure Report (HSR) for the Kingsley Plantation barn at Timucuan Ecological and Historic Preserve in Jacksonville, Florida. Figure 1 is a map of Florida showing the location of Timucuan Ecological and Historic Preserve. Figure 2 is a map showing the boundaries of Timucuan Ecological and Historic Preserve. Figure 3 is an annotated drawing showing Kingsley Plantation and the location of the barn.

Kingsley Plantation lies along the Fort George River at the northern tip of Fort George Island in northeast Florida, 23 miles northeast of downtown Jacksonville. The 51-acre property is part of Timucuan Ecological and Historic Preserve, established in 1988 to contribute to the protection, preservation, and management of unspoiled coastal wetlands and estuaries and prehistoric sites.

The tabby barn is located at the northern portion of the Kingsley Plantation site, southeast of the plantation house. A gravel parking area is located directly south of the barn, with paths leading to the barn as well as the plantation house and kitchen from the parking area. As of 2024, the NPS is developing a *Development Concept Plan and Environmental Assessment* for the Kingsley Plantation site to remove noncontributing infrastructure. The gravel parking area south of the barn would be removed as part of this plan.[1]

Based on available architectural and archeological evidence, the original, northern portion of the Kingsley Plantation barn was constructed circa 1798 by John McQueen, and the south addition circa 1814 by Zephaniah Kingsley.[2]

Kingsley Plantation was listed in the National Register of Historic Places in 1970. National Register of Historic Places Additional Documentation was prepared in 2016 to expand on the information afforded in the 1970 nomination by considering more recent scholarship and the findings of several archeological investigations. The Kingsley Plantation barn is identified in the Additional Documentation as one contributing structure within the Kingsley Plantation Historic District.

Historical Data

The Kingsley Plantation property has a long cultural history that extends over thousands of years from the pre-European contact Late Archaic period, circa 4000 BCE (Before Common Era), to the present. Surviving aboveground evidence of early European American settlement and

1. National Park Service, *Kingsley Plantation Development Concept Plan and Environmental Assessment, Timucuan Ecological and Historic Preserve, Florida,* June 2023.
2. Hartrampf Engineers, Architects, Surveyors. *Timucuan Ecological and Historic Preserve, Kingsley Plantation, Kitchen House, Historic Structure Report* (Atlanta, Georgia: National Park Service, 2005), 61; Deborah Slaton, Liz Sargent, and Tim Penich, *National Register Nomination for Kingsley Plantation Historic District, Additional Documentation* (Jacksonville, Florida: Timucuan Ecological and Historic Preserve, 2016).

plantation agriculture dates to the mid-to-late eighteenth century.

The historical overview developed as part of this HSR includes a brief history of the evolution of the property prior to its purchase by Zephaniah Kingsley and discusses in greater detail the history of Kingsley Plantation from that point forward. The overview is followed by a detailed discussion of the evolution of the Kingsley Plantation barn, from original construction through the present, reflecting information available from the park archives and research conducted for this study.

In 1817, Zephaniah Kingsley Jr. purchased the property that would become Kingsley Plantation from planter John Houston McIntosh. Florida was still controlled by Spain at that time. Kingsley moved to the island with his wife, Anna Madgigine Jai Kingsley, and their family. Anna Kingsley had been captured in a raid on her native village in Senegal and sold into slavery. She was purchased by Zephaniah Kingsley in Havana, Cuba, in 1806. They soon married, and in 1811, Kingsley granted Anna her freedom.

By the time Kingsley purchased the property, the plantation house (circa 1797–1798) and nearby kitchen (circa 1798), were already extant. Construction is believed to have been completed by enslaved persons. Similar to several other structures at Kingsley Plantation, they were constructed of tabby. Tabby is a masonry material consisting of lime (produced by the burning of oyster shells), oyster shells, sand, and water. The materials are mixed and poured into forms or molds to create foundations, walls, columns, or brick. Tabby was a popular building material in the coastal regions of north Florida, Georgia, and South Carolina during the first half of the nineteenth century.

The Kingsley Plantation barn was originally constructed by John McQueen circa 1798. The south portion of the barn was added by Zephaniah Kingsley in 1814. A carriage house was constructed adjacent to the barn circa 1870–1875 but was removed prior to 1955. A concrete floor was added at an unknown time during the Rollins family ownership of the site.

By the early 1950s, the Florida State Park Board had begun to express an interest in the Kingsley Plantation property due to its historical and recreational value. In 1955, the State of Florida purchased the property including the plantation house complex and barn.

The concrete floor in the barn added by the Rollins family was subsequently removed during the State of Florida's ownership of the property.

On February 16, 1988, the Timucuan Ecological and Historic Preserve was established by the United States Congress. The preserve as established included the Kingsley Plantation on Fort George Island. In 1991, the National Park Service took possession of the Kingsley Plantation complex from the State of Florida. The National Park Service stabilized the barn structure in 1988 and again in 2002. The roof was also replaced in 2002. A wood floor was added to the south end portion of the barn in 2009. Since 2004, the park has used the barn for interpretive purposes.

Treatment and Use

The Kingsley Plantation barn is a contributing resource to the Kingsley Plantation Historic District, as documented in the National Register Nomination Additional Documentation prepared in 2016. The administratively determined Management Category is "Should be Preserved and Maintained" and the Ultimate Treatment is "Preservation," as defined in *The Secretary of the Interior's Standards for Treatment of Historic Properties*. This treatment approach has been confirmed with the Park in preparation of this HSR.

Ongoing monitoring, repair, and maintenance are required to ensure continued preservation and use of the Kingsley Plantation barn.

Administrative Data

Locational Data

Building Name: Kingsley Plantation barn

Location: Timucuan Ecological and Historic Preserve

UTM Information:

30.439279, -81.437222
UTM Zone: 17R
UTM Easting: 458017.71
UTM Northing: 3367543.81

CRIS Number

ID 090104

Structure Number

HS K003

Related Studies

Deborah Slaton, Liz Sargent, and Tim Penich. *National Register Nomination for Kingsley Plantation Historic District, Additional Documentation*. Jacksonville, Florida: Timucuan Ecological and Historic Preserve, 2016.

Daniel W. Stowell. *Timucuan Ecological and Historic Reserve Historic Resource Study*. Atlanta, Georgia: National Park Service, October 1996.

Hartrampf Engineers, Architects, Surveyors, and The Jaeger Company. *Timucuan Ecological and Historic Preserve, Kingsley Plantation, Cultural Landscape Report*. Atlanta, Georgia: National Park Service, undated.

James M. Davidson. *Preliminary Report of Investigations of the University of Florida 2007 Historical Archaeological Field School: Kingsley Plantation (8DU108), Timucuan Ecological and Historic Preserve National Park, Duval County, Florida*. Submitted to the U.S. Department of the Interior, National Park Service, Southeast Archeological Center, in partial fulfillment of Permit for Archaeological Investigations TIMU 06-001, August 2007.

James M. Davidson. *Preliminary Report of Investigations of the University of Florida 2012 Historical Archaeological Field School: Kingsley Plantation (8DU108), Timucuan Ecological and Historic Preserve National Park, Duval County, Florida*. Submitted to the U.S. Department of the Interior, National Park Service, Southeast Archeological Center, in partial fulfillment of Permit for Archaeological Investigations TIMU 2009-02 (amendment of 5/15/2012), March 2013.

Cultural Resource Data

Kingsley Plantation was listed in the National Register of Historic Places in 1970, based on documentation prepared by a representative of Kingsley Plantation State Park (National Register no. 70000182).[3] The nomination indicates that the 50-acre property is nationally significant under Criteria A, B, C, and D, in the areas of Archeology (Prehistoric and Historic), Agriculture, Architecture, Commerce, Education, Industry, Military, and Politics/Government, during a period that spanned the sixteenth through the nineteenth centuries.[4]

In 2016, National Register Additional Documentation was prepared to provide additional documentation and expand on the information provided in the 1970 nomination by considering more recent scholarship and the findings of several archeological investigations in the refinement of the areas of significance, features contributing to the significance of the property, and the period of significance.[5] It also reflects a boundary clarification from 50 to 51 acres. The nomination notes that the historic district is:

> . . . nationally significant under Criteria A, B, C, and D for its associations with early settlement within northeast Florida, antebellum

3. Dena Snodgrass, *National Register Nomination for Kingsley Plantation* (Jacksonville, Florida: Kingsley Plantation State Park, 1970).
4. Snodgrass, *National Register Nomination for Kingsley Plantation*.
5. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.

> plantation agriculture, postbellum farming adaptations to a new economy, and a twentieth-century transition to a tourism economy. For these associations, Kingsley Plantation is significant in the areas of Agriculture, Archeology (Historic, Non-Aboriginal), Architecture, Exploration/Settlement, Military History, and Recreation.[6]

With reference to the Kingsley Plantation barn that is the subject of this HSR, the 2016 National Register Additional Documentation noted:

> Although it has been altered several times since its original phases of construction, the barn possesses sufficient integrity to convey its historic associations and contributes to the significance of the Kingsley Plantation.[7]

Period of Significance: 1798–1955

Proposed Treatment: Preservation

Project Scope and Methodology

The goal of the HSR is to develop planning information for use in the repair, maintenance, and preservation of historically significant buildings and structures. First developed by the NPS in the 1930s, HSRs are documents prepared for a building, structure, or group of buildings and structures of recognized significance. They are developed to record and analyze the property's initial construction and subsequent alterations through historical, physical, and pictorial evidence; to document the performance and condition of the structure's materials and overall physical stability; to identify an appropriate course of treatment; and, following implementation of the recommended work, to document alterations made through that treatment.[8]

The HSR addresses key issues specific to Kingsley Plantation barn at Timucuan Ecological and Historic Preserve, including the history of the structure; its design and construction; the existing physical condition of the barn; and its historic significance and integrity. The HSR consists of the management summary, history, description and condition assessment, and significance and integrity evaluation, followed by discussion of the treatment approach and recommendations. Four appendices are included: Historic American Buildings Survey (HABS) drawings, measured drawings of the barn, a structural evaluation of the barn, and a laboratory study of tabby concrete samples.

The following project methodology was used for this study.

Research and Document Review. Archival research was performed to gather information about the original construction and past modifications and repairs for use in assessing existing conditions and developing treatment recommendations for the building. Documents reviewed included maps, drawings, specifications, historic photographs, and other written and illustrative documentation about the history of construction and repairs to the Kingsley Plantation barn. The research for this study built upon prior historical and archival research completed by the NPS and others, as well as research for the 2016 Additional Documentation completed by members of the HSR project team, as outlined in the bibliography provided with this report. Primary reference material for this study was obtained from the Timucuan Ecological and Historic Preserve archives and facilities collections. Additional research material was obtained from the National Park Service Technical Information Center (TIC) in Denver, Colorado, and the Florida State Archives.

6. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
7. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
8. Deborah Slaton, *Preservation Brief 43: The Preparation and Use of Historic Structure Reports* (Washington, D.C.: National Park Service, Technical Preservation Services, 2005).

Condition Assessment and Documentation. Concurrent with the historical research, a condition survey of the Kingsley Plantation barn was performed, and observations were documented with digital photographs, field notes, and annotation on baseline drawings prepared by the project team. The condition assessment addressed all extant portions of the building.

Development of History, Chronology of Construction, and Evaluation of Significance. Based on historical documentation and physical evidence gathered during the study, a context history and a chronology of design and construction were developed. An evaluation of the significance of the barn was also prepared, taking into consideration guidelines provided by the National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*.[9] This evaluation of history and significance provided the basis for the development of recommended treatment alternatives.

Guidelines for Preservation. Based on the evaluation of historical and architectural significance of the structure, guidelines were prepared to assist in the selection and implementation of preservation treatments.

Treatment Recommendations. The Secretary of the Interior's Standards for the Treatment of Historic Properties guided the development of treatment recommendations for the significant features of the structures. Following the overall treatment approach of Preservation for the Kingsley Plantation barn, the specific recommendations were developed to address the observed existing distress conditions as well as long-term preservation objectives.[10]

Preparation of Historic Structure Report. Following completion of research, site work, and analysis, a narrative report was prepared summarizing the results of the research and inspection and presenting recommendations for treatment. The management summary, history, condition assessment, and evaluation of significance comprise Part 1 of the HSR, while the treatment section of the report comprises Part 2. The HSR was compiled following guidance afforded by Director's Order NPS-28, *Cultural Resource Management Guideline*, and NPS Preservation Brief 43: *The Preparation and Use of Historic Structure Reports*, with modifications to organizational structure for purposes of this project.[11]

9. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: National Park Service, National Register of Historic Places, 1997).
10. Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, D.C.: National Park Service, Historic Preservation Services, 2017).
11. NPS-28, "Cultural Resource Management Guideline," accessed May 2019, https://www.nps.gov/parkhistory/online_books/nps28/28intro.htm; Slaton, *Preservation Brief 43: The Preparation and Use of Historic Structure Reports*.



Figure 1. Map of Florida showing the location of the Timucuan Ecological and Historic Preserve. (Source: Map by the authors)



Figure 2. Map of Timucuan Ecological and Historic Preserve showing the location of Kingsley Plantation (orange highlight). (Source: National Park Service; annotations by the authors)

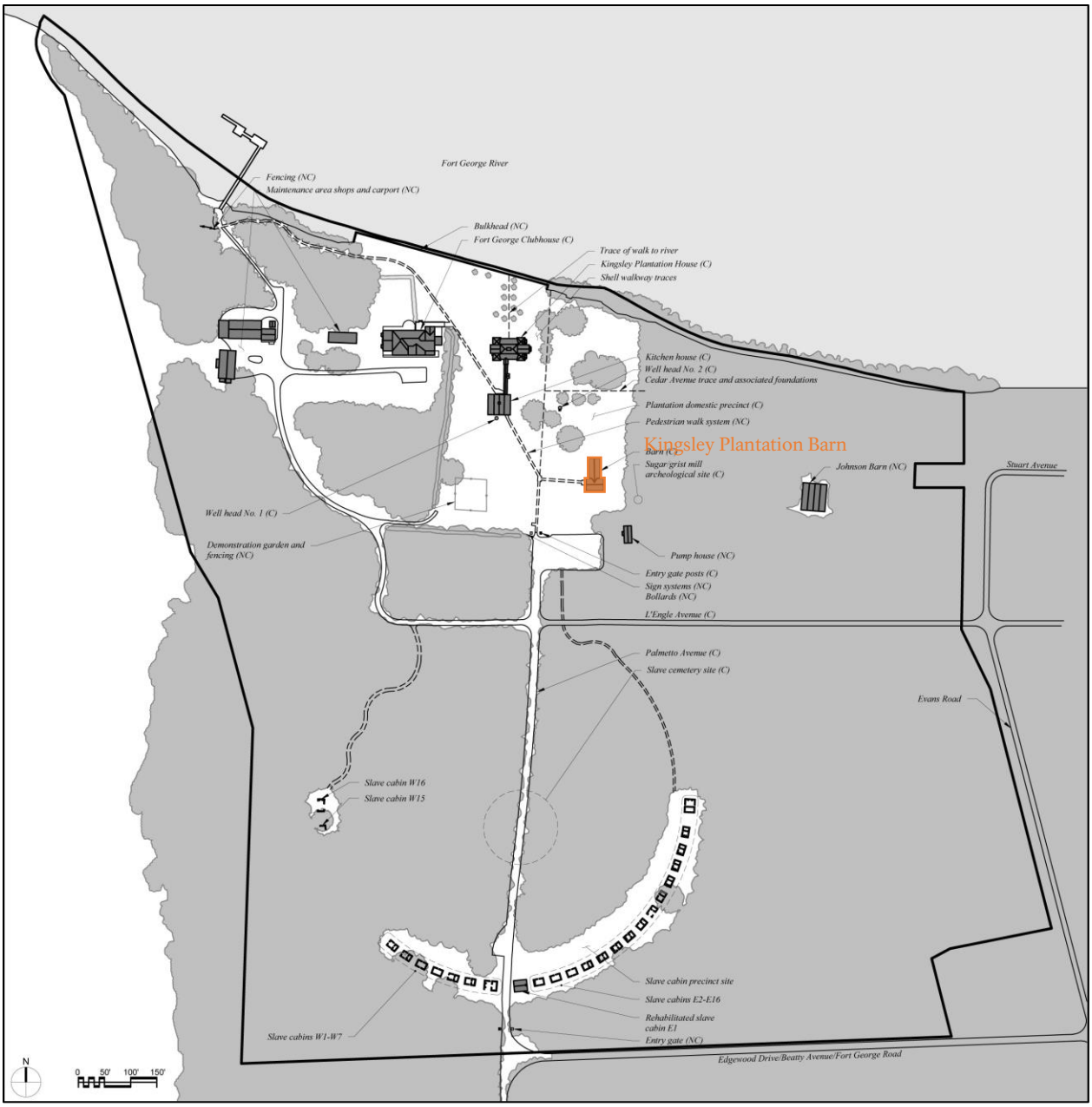


Figure 3. Kingsley Plantation showing the location of the barn (orange highlight). (Source: National Register Nomination: Kingsley Plantation Historic District; annotated by the authors)

Developmental History

This chapter of the Historic Structure Report consists of two sections: an overview of the evolution of the property followed by a physical history of the tabby barn. The overview, which provides a brief history of the site through its acquisition by Zephaniah Kingsley and a more detailed history from that point forward, is based on the National Register of Historic Places Additional Documentation for Kingsley Plantation (2016) and the Historic Structures Report for the Kingsley Plantation tabby slave cabins (2023), both prepared by members of the HSR project team.[12] The overview portion of this chapter includes context information related to the history of the barn. The physical history portion of the chapter provides a more detailed discussion of the barn's original construction and repair and maintenance over time, as possible based on available archival documentation. The chapter concludes with a table providing a chronology of key dates and events related to the site and the tabby barn.[13]

Overview of the Evolution of the Property

The Kingsley Plantation property has a long cultural history that extends over thousands of years from the pre-European Contact Late Archaic period, circa 4000 BCE (Before Common Era), to the present. Surviving aboveground evidence of early European American settlement and plantation agriculture dates to the mid-to-late eighteenth century.

Prehistory through European Contact

The tabby barn is part of the Kingsley Plantation, a federally protected property within the Timucuan Ecological and Historic Preserve, a unit of the National Park System. Timucuan Ecological and Historic Preserve is named for the Timucua Indians, who occupied northeast Florida at the time of European contact during the sixteenth century.

The Timucua people lived in large villages built near the river.[14] They first encountered Europeans in 1562, when French settlers arrived at the St. Johns River.[15] The Europeans who visited and later settled the region quickly undermined the health and well-being of the Timucua. Local peoples did not have immunity to diseases brought by Europeans. Also, Timucua were enslaved by European Americans, or forced to serve as soldiers

12. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*; Wiss, Janney, Elstner Associates Inc., *Historic Structures Report for the Kingsley Plantation Tabby Slave Cabins,* 2023.
13. The lives of the enslaved persons at Kingsley Plantation are not a primary subject of this HSR. Information on this topic is provided in Amani T. Marshall, PhD, *Special History Study for Timucuan Ecological and Historic Preserve on the Enslaved Inhabitants on Fort George Island*, prepared for the National Park Service (March 2022).
14. Daniel W. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study* (Atlanta: National Park Service, October 1996), 5.
15. Susan Hammersten, *An Archeological Overview and Assessment of Sites within and Adjacent to the Proposed Boundaries of the Timucuan Ecological and Historic Preserve, Duval County, Florida* (Tallahassee, Florida:

or heavy laborers. These hazardous occupations, coupled with the impact of disease, decimated the native peoples of northeast Florida.[16]

European Colonial and American Occupation of Florida, circa 1562–1821

Although Juan Ponce de León had laid claim to "La Florida" for Spain in 1513, a French expedition led by Jean Ribault traveled to the area in 1562 looking for settlement sites for a Protestant refuge. After arriving at the mouth of the *Rivière de Mai* (River of May; later the St. Johns River) on May 1, 1562, Ribault's party laid claim to the area for France and erected a carved stone marker as evidence before continuing its exploration northward.[17] Soon after, King Charles IX of France determined to establish a French colony in the region. Based on Ribault's report, the settlement would be located along the south bank of the St. Johns River, a few miles inland from the mouth. On June 25, 1564, René Goulaine de Laudonnière, a lieutenant of Ribault, reached the St. Johns River with a party of 300 to establish a settlement, which would be the first French settlement within the present-day United States. The colonists, who were mostly Huguenots, named their settlement "La Caroline" in honor of King Charles.[18] By August 1565, however, the colonists were suffering from lack of food and leadership and were disappointed in the lack of opportunities for securing material wealth. Before they could abandon the settlement, Jean Ribault arrived with reinforcements but was soon followed by a Spanish party that had been ordered by King Philip II to remove the French from Spanish-claimed lands. The Spanish forces under the command of Pedro Menéndez de Avilés established a base of operations at the settlement of St. Augustine and captured and burned the French fort, killing most of the French occupants and the French contingent sent to supply them. A French expedition led by Dominique de Gourgues defeated the Spanish and captured and burned the fort in April 1568, killing the Spanish prisoners in retribution for the killing of French prisoners a few years earlier. Spain rebuilt the fort but abandoned it the following year. France ". . . never again strongly challenged Spanish claims in North American area."[19]

The Spanish began to expand their influence within the region during the 1580s. In 1587, they established the San Juan del Puerto mission on what is now Fort George Island (formerly San Juan Island). The mission occupied a portion of the northwestern section of the island that included the future Kingsley Plantation. Due to the harsh treatment of the local people by the Spanish and the introduction of diseases for which they had no immunity, the Timucua culture rapidly declined between 1587 and the late seventeenth century.[20] From a population possibly numbering tens of thousands at the time of contact, there were only an estimated 550 Timucuans alive in the region by 1698.[21]

By the late seventeenth century, the British had begun regularly raiding Spanish missions in the area that is now Georgia. In 1702, the British moved southward, defeating the Spanish, capturing their missions, and laying claim to the region. To reinforce their claim, James Oglethorpe constructed the short-lived Fort St. George on the island, which he renamed Fort George Island, in 1732.[22]

National Park Service, Southeast Archeological Center, 1988), 4.

16. National Park Service, "Timucuan; Life in Northeast Florida, 1000 C.E."
17. Hartrampf Engineers, Architects, Surveyors, and The Jaeger Company, *Timucuan Ecological and Historic Preserve, Kingsley Plantation Cultural Landscape Report* (Atlanta: National Park Service, undated), 12.
18. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 12–13.
19. National Park Service, "Fort Caroline National Memorial," accessed July 2024, https://www.nps.gov/articles/ftcaroline.htm.; Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 13.
20. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 13.
21. National Park Service, "Who Were the Timucua?" printed brochure.
22. Jonathan Bryan, *Journal of a Visit to the Georgia Islands of St. Catherines, Green,*

The signing of the Treaty of Paris in 1763 by Spain, France, and Great Britain ended the French and Indian War in North America (known as the Seven Years' War in Europe). Through this treaty, control of Florida was ceded to Britain. British occupation of Florida led to a new system of land ownership. The new governor, James Grant, encouraged settlement within the province by distributing large land grants to Protestant families offering to move to the region, as well as to absentee owners in England. Grant's land policies ushered in the era of plantation agriculture.[23]

Fort George Island's first English owner was John Tucker. Tucker is known to have raised indigo and rice for export to Great Britain until 1783, although it is not known how much of his output originated on Fort George Island.[24] Tucker sold Fort George Island to Richard Hazard Sr. in 1765. A planter and enslaver, Hazard is known to have produced indigo for commercial sale. Hazard had settled on Fort George Island by the time naturalist John Bartram and his son, William, visited the island on February 10, 1766. The Bartrams found Fort George to be "a large rich island" with ". . . numerous heaps of oyster shells, which one may reasonably suppose were many hundred years in collecting" by Native Americans, as well as the remnants of a Spanish mission.[25]

By 1771, Richard Hazard Jr., also a planter, appears to have assumed responsibility for the island from his father. That year, Governor Patrick Tonyn acquired several thousand acres in eastern Florida, including Fort George Island. Little is known about the agricultural activities that occurred on the island during the decade that followed.[26]

The Treaty of Paris that ended the American Revolution in 1783 resulted in the transfer of Florida back to Spain and ended twenty years of British rule. Many British colonists, however, elected not to leave Florida after it reverted to Spanish ownership. During the second period of Spanish ownership, Spain's management of Florida evolved from a military and religious focus to the encouragement of settlement and commercial growth. According to census records, William Harris and his family lived on Fort George Island in 1784 as the territory returned to Spanish control. They are thought to have left Florida by 1789 in response to the change in administration.[27]

In 1790, King Charles IV of Spain issued a Royal Order that instituted a land grant system in Florida through which land was issued to any Spanish citizen who petitioned for it. The petitioner was responsible for making certain improvements to the property to become the registered owner. The king also offered land grants to foreign nationals who would swear allegiance to Spain in return for land.

Ownership of the Property prior to Acquisition by Zephaniah Kingsley, 1791–1817

McQueen Ownership, 1791–1804. John McQueen was born in Philadelphia and grew up in Charleston, South Carolina. During the Revolutionary War, he was commissioned as a captain in the Navy of South Carolina, and he served as a courier between Gen. George

Ossabaw, Sapelo, St. Simons, Jekyll, and Cumberland with Comments on the Florida Islands of Amelia, Talbot, and St. George in 1753, in Virginia Steele Wood and Mary R. Bullard, eds. (Macon, Georgia: Mercer University Press, 1996), 32.

23. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 21.
24. Henry A. Baker, *Roads and Walkways at the Kingsley Plantation: An Archaeological Study* (Tallahassee: Bureau of Archaeological Research, Division of Archives, History and Records Management, Florida Department of State, for the Division of Recreation and Parks, Florida Department of Natural Resources, September 30, 1985), 6.
25. John Bartram, *Diary of a Journey Through the Carolinas, Georgia, and Florida, from July 1, 1765, to April 10, 1766*, annotated by Francis Harper (Philadelphia: American Philosophical Society, 1942), 26, 48, 76.
26. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 14, 17.
27. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 31.

Washington and Maj. Gen. Gilbert du Motier, Marquis de Lafayette. Following the end of the war, McQueen was involved in land speculation in South Carolina and Georgia. In 1784, he purchased land in Georgia south of the Savannah River, and, with the work of enslaved laborers, built a plantation named "The Cottage." McQueen lived in France between 1785 and 1788, where he entertained Thomas Jefferson and the Marquis de Lafayette. In 1791, McQueen moved to Florida to avoid paying debts related to his land purchases in Georgia. As a subject of Spanish Florida, McQueen pledged his allegiance to the Spanish King and converted to Catholicism, changing his name to Don Juan McQueen.[28]

McQueen was an enslaver of a large number of people. He brought 300 enslaved persons with him to Florida as his only "transportable property; these persons provided labor for McQueen's timbering and agricultural endeavors."[29] Soon after arriving, he established a timbering operation on the St. Johns River. Fort George Island was granted to him on November 21, 1791, as a reward for his efforts to capture the British privateer William Augustus Bowles.[30] In 1792, McQueen built a house on the island, likely on the St. Johns River close to his sawmill.[31] Labor for construction of the buildings was provided by enslaved people, who included skilled craftsmen. The Spanish set fire to McQueen's house in 1794 to prevent it from being seized by French-inspired revolutionaries.[32] McQueen appears to have rebuilt on the property by 1798, quickly establishing a two-story main dwelling house along with a kitchen house.[33] In addition to timbering, McQueen practiced agriculture on the island, and he had begun planting cotton on the island by 1798, with all of his operations sustained by enslaved labor.[34] He also planted a variety of fruit trees.[35]

In 1801, John McQueen was named Judge of the "Banks of the St. Johns and St. Mary's Rivers," with the inhabitants of the area ordered to obey him as if he were governor.[36] In 1802, McQueen's sawmill was destroyed by bad weather and high tides.[37] Due to poor crop yields and the loss of his sawmill, McQueen fell into debt.

McIntosh Ownership, 1804–1817. In 1804, McQueen sold Fort George Island to Georgia planter John Houston McIntosh, who moved to the property with his wife, Eliza, soon thereafter. The McIntoshes expanded the cotton operation begun by McQueen. Using the labor afforded by their 200 enslaved persons, the McIntoshes placed between 300 and 400 acres of the island under cultivation, focusing on Sea Island cotton. They housed their enslaved persons in wooden buildings, often located near the fields.[38] Sea Island cotton was well-suited to the long growing season, frequent rain, and well-drained soils of the coastal areas of the southeastern United States, such as that found at Fort George Island. The fields were made more productive using the natural fertilizers found in the organic marsh soil and the lime-rich shell middens that dotted the river shores.[39] These same midden piles were also used as road surfacing and as part of the tabby

28. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 33; Don Juan McQueen papers, 1779–1803, Georgia Historical Society, accessed April 2024, https://7063.sydneyplus.com/archive/final/Portal/Default.aspx?component=AABC&record=4fa07301-92ec-4c47-9b82-4d30d7450835.
29. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 34.
30. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 34.
31. Hartrampf, *Timucuan Ecological and Historic Preserve, Kingsley Plantation, Main House, Historic Structure Report* (February 4, 2005), 16.
32. Hartrampf, *Kingsley Plantation Main House Historic Structure Report*, 16.
33. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 18.
34. Hartrampf, *Main House Historic Structure Report,* 16.
35. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 36.
36. Hartrampf, *Main House Historic Structure Report,* 16.
37. Hartrampf, *Main House Historic Structure Report,* 16.
38. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 39.
39. Baker, *Roads and Walkways,* 29–30.

used to construct buildings, such as the Kingsley Plantation barn and cabins for enslaved persons during the eighteenth and early nineteenth centuries.

The McIntosh plantation on Fort George Island was consistent with the broader settlement pattern in northeast Florida, where wealthy landowners carved fields out of existing woodland areas located in proximity to waterways that could serve as transport systems for goods and agricultural products. After 1805, McIntosh cultivated between 300 and 400 acres of cotton on Fort George Island. Land in the region was relatively inexpensive, and the soils were fertile and productive. The St. Johns River and nearby St. Mary's River attracted agricultural investment, and plantation development focused on growing indigo, rice, and Sea Island cotton. This plantation culture relied on enslaved labor, for the most part imported through the interstate slave trade to work on the plantations.[40]

By 1812, Americans who had moved to Florida since the 1790s had grown restless under Spanish rule. With the onset of the War of 1812, the U.S. government was anxious to control the territory of Florida to prevent Britain from gaining a foothold there. Americans in Florida formed an alliance determined to seize the colony of Florida from the Spanish and turn it over to the United States for annexation. The Patriot Rebellion (or Patriot War) of 1812 resulted from their discontent. The patriots expected generous grants of land in East Florida from the U.S. government in return for their efforts. John McIntosh was heavily involved in the effort. The alliance elected him Commissioner and tasked him with negotiating with the United States to accept the territory, should they successfully wrest it from the Spanish.[41]

During the armed conflict that ensued, the Seminoles joined the Spanish, ransacking homes and plantations and attacking the Patriots and their sympathizers. On Fort George Island, McIntosh's plantation was attacked, all the buildings except the main house were burned, and several boats and a cotton gin were stolen.[42] All along the banks of the St. Johns River, plantations were destroyed and lay in ruins, with buildings damaged or destroyed, crops, livestock, and possessions plundered, and enslaved persons stolen or killed. Wood buildings formerly used for housing overseers, enslaved persons, and livestock were left as charred ruins.

After the failed rebellion, McIntosh and his family fled the island and moved to Georgia in 1813, where McIntosh remained a successful planter. In the late 1820s, McIntosh built the first animal-powered sugar mill in Georgia.

Kingsley Ownership, 1817–1839

In 1814, John McIntosh began renting his plantation to Zephaniah Kingsley Jr., a planter who was also an owner and trader of enslaved persons. Kingsley was born in England and grew up in Charleston, South Carolina. His father had remained loyal to the British throughout the American Revolution and fled to Canada after the war. Zephaniah Kingsley formally declared loyalty to Spain in St. Augustine in September 1803.[43]

Prior to moving to the plantation purchased from John McIntosh, Kingsley, his family, and their enslaved laborers resided at his 2,600-acre Laurel

40. Julia Floyd Smith, *Slavery and Plantation Growth in Antebellum Florida, 1821–1860* (Gainesville: University Press of Florida, 1973), 9–10.
41. "The Patriot War of 1812," The Jacksonville Historical Society, accessed September 2022, jaxhistory.org/patriot-war-1812/.
42. "The Patriot War of 1812," The Jacksonville Historical Society, accessed September 2022, jaxhistory.org/patriot-war-1812/; Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 42; Daniel L. Schafer, *Anna Madgigine Jai Kingsley: African Princess, Florida Slave, Plantation Slave Owner* (Gainesville: University Press of Florida, 2003, revised 2018), 46.
43. Mark J. Fleszar, *The Atlantic Legacies of Zephaniah Kingsley: Benevolence, Bondage, and Proslavery Fictions in the Age of Emancipation*, dissertation (Georgia State University, 2013), 27.

Grove plantation in East Florida.[44] From his Laurel Grove plantation, Kingsley obtained revenue from crops, cutting timber, and operating stores that catered to residents and travelers along the river. By 1811, he owned three other plantation complexes in addition to Laurel Grove—Springfield, Conesfield, and Drayton Island—and approximately 100 enslaved people, mostly young adult men.[45] At Laurel Grove, enslaved workers were trained in blacksmithing, carpentry, cotton ginning, and field work, allowing them to fulfill tasks on Kingsley's plantation but also increasing their value for sale as his property. Historian Mark Fleszar notes: ". . . it was slavetrading that provided Kingsley with a handsome fortune. With frequent ventures to the Caribbean and to the West African coast, he earned a reputation as one of East Florida's largest importers of Africans."[46] Kingsley also became involved in domestic trading of enslaved persons, which continued in the United States after the Atlantic slave trade was prohibited in this country in 1808.[47]

In July 1812, during the Patriot Rebellion, Seminoles attacked the Laurel Grove plantation, burned the outbuildings, killed two enslaved men, and captured forty-one other enslaved persons. The enslaved persons were never recovered and may have remained with the Seminoles.[48]

Between 1803 and his death in 1843, Kingsley owned 32,044 acres of land in East Florida, including 16,000 acres comprising a sawmill grant, all supported by enslaved laborers.[49] In addition to plantations growing cotton and provisions, Kingsley also owned 9 acres of orange groves containing approximately 700 trees.[50]

Zephaniah Kingsley's wife, Anna (as Kingsley called her) Madgigine Jai Kingsley, was born in Senegal. Anna Madgigine Ndiaye had been captured in a raid on her native village and transported to Gorée Island on the West African coast, where she was sold into slavery. She was placed on a ship bound for the Americas. After arriving in Havana, Cuba, she was purchased by Zephaniah Kingsley in 1806. Anna and Zephaniah then traveled by boat to Florida, and by the time they arrived, they were married and expecting a child.[51] At the time, Anna Kingsley was thirteen years old and Zephaniah Kingsley was forty-one. Five years later, in 1811, Zephaniah granted his wife and their three young children, George, Martha, and Mary, their freedom.[52]

As a free woman, Anna Kingsley also owned enslaved persons and land, which was permitted in Florida while the territory remained under Spanish rule. Anna Kingsley was descended from Senegalese aristocracy through both of her parents.[53] For this reason, she is thought to have been familiar with ownership of enslaved persons.

Zephaniah and Anna Kingsley, their three children, and their enslaved persons arrived at Fort George Island in March 1814. Over the next two decades, this location would serve as

44. Laurel Grove was located on Doctors Lake, a brackish body of water connected to the St. Johns River, near what is now the town of Orange Park in Clay County, Florida.
45. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 41.
46. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 28, citing James A. McMillin, "The Final Victims: Foreign Slave Trade to North America, 1783-1810" (Columbia: University of South Carolina Press, 2004), 90.
47. "The End of the Slave Trade," National Museum of American History, accessed September 2022, https://americanhistory.si.edu/on-the-water/living-atlantic-world/forced-crossings/end-slave-trade.
48. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 42; Marshall, *Special History Study for Timucuan Ecological and Historic Preserve on the Enslaved Inhabitants on Fort George Island,* 9–10.
49. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 42.
50. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 41–42.
51. Schafer, *Anna Madgigine Jai Kingsley*.
52. Zephaniah Kingsley had at least two other enslaved women with whom he had children, but Anna Kingsley was the only one to whom he referred as his wife (Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 41).
53. Schafer, *Anna Madgigine Jai Kingsley,* 1.

Kingsley's primary plantation.[54] After renting the Fort George property for several years, Kingsley purchased the plantation on January 27, 1817. Soon after Kingsley's purchase of the property on Fort George Island, Spain and the United States signed the Adams-Onis Treaty of 1819 (also known as the Transcontinental Treaty), in which Spain ceded East and West Florida to the United States. The treaty was made in exchange for the assumption of responsibility by the United States government for $5 million in claims by American citizens against Spain. The United States would take control of the territory once the treaty was ratified in 1821.[55]

On Fort George Island, Kingsley continued the practice of growing Sea Island cotton using enslaved labor. He is also known to have planted sugarcane as well as food crops such as corn, beans, and potatoes, and possibly orange trees, which were known to have been part of his other plantations. According to Kingsley's nephew, Kingsley Beatty Gibbs, who himself later owned the plantation, cotton and foodstuffs became profitable crops for the plantation; the addition of sugarcane fields and citrus groves were instrumental in increasing the economic viability of the property.[56]

Historian Daniel Schafer writes that Zephaniah Kingsley ". . . [made] use of the task system of labor organization. The task system emerged in the eighteenth century among rice plantations in low-country areas of the South."[57] It involved assigning each enslaved person a specific task for the day, such as hoeing a specific portion of a field. When the task was complete, the enslaved person was free to spend the rest of the day meeting his or her own needs, such as fishing, hunting, and tending to crops. Kingsley's nephew wrote that his uncle preferred to allow his enslaved persons to use this time uninterrupted by other plantation duties, and that this system provided positive motivation and made plantation operations more efficient. Allowing the enslaved persons time to tend their own crops likely decreased the amount of foodstuffs the Kingsleys needed to supply them for their sustenance.[58] Kingsley also allowed his enslaved persons a half day off on Saturday and a full day off on Sunday to be used for their own purposes, and he encouraged "dancing, merriment, and dress."[59]

The Kingsleys managed the island with the goal of "restoring the barrier-island plantation to its former prosperity."[60] During their period of ownership, Zephaniah and Anna Kingsley made many improvements to the property. The principal area of the plantation surrounding the main house, the domestic precinct, included the main house and kitchen house, as well as two well heads, and the barn and sugar mill where crops were stored and processed. The enslaved laborers, who included skilled workers such as carpenters, made repairs to address damage that had occurred during the Patriot Rebellion, including work on the main house and improvements to the kitchen house, where Anna and her children would live.[61]

To house the enslaved persons, the Kingsleys had their enslaved workers construct a complex of thirty-two tabby quarters set in an arc formation, approximately 1,200 feet south of the plantation domestic precinct (refer to Figure 2).[62] The main

54. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 42.
55. "Acquisition of Florida: Treaty of Adams-Onis (1819) and Transcontinental Treaty (1821)," Office of the Historian, Foreign Service Institute, United States Department of State, accessed September 2022, https://history.state.gov/milestones/1801-1829/florida.
56. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 28, citing Fretwell.
57. Schafer, *Anna Madgigine Jai Kingsley,* 43.
58. Karen Jo Walker, "Kingsley and His Slaves: Anthropological Interpretation and Evaluation," *Volumes in Historical Archaeology* V (Columbia: University of South Carolina, The South Carolina Institute of Archaeology and Anthropology, May 1988), 44.
59. Schafer, *Anna Madgigine Jai Kingsley,* 72.
60. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 45.
61. Schafer, *Anna Madgigine Jai Kingsley,* 159–161.
62. Tabby is a local material made from a concrete-like mixture of water, sand, lime, and oyster shell.

house at Kingsley Plantation was accessed from the river, presenting an impressive view of the house as visitors approached by boat. Access by land was provided via a road leading from Palmetto Avenue. Visitors passed through the center of the arc of slave cabins that extended to either side as they approached the main house. Each cabin housed a family unit, usually two to four people. The exact date of construction of the slave cabins is not known; however, archeologist John Whitehurst has suggested that the cabins were constructed between 1822 and 1830.[63]

Based on review of several late 1800s photographs, archeologist Karen Jo Walker suggests that the area north of the slave cabins was used for subsistence farming. Walker also indicates that because the enslaved persons at Kingsley's Laurel Grove Plantation kept hogs and fowls near their quarters, the enslaved persons at Fort George Island may have kept similar livestock near the cabins.[64]

The Kingsleys also built the land approach to the plantation domestic complex now known as Palmetto Avenue. Descriptions of Palmetto Avenue lined with stately palmetto trees date to the mid-nineteenth century. Historical accounts suggest that the Kingsleys planted the palms during their residence on Fort George Island.[65] In the 1880s, Zephaniah and Anna Kingsley's daughter, Mary Sammis, recalled helping to "set out" the palm trees along Palmetto Avenue:

> The sound of palm fronds as the wind stirred the trees lining the road-way south of the slave quarters held special memories for Anna's daughter, Mary. In the 1880s, long after she had married John S. Sammis and moved away from Fort George Island, Mary recalled her mother's directing workers as they planted long rows of palm tree on each side of the road leading to her home at the north end of the island.[66]

In an 1877 *Scribner's Magazine* article about Fort George Island, Julia Dodge observed:

> Beyond the "quarters," through fields reclaimed from their wildness and once more under cultivation, curves a magnificent avenue of palms, the boast of the island and unequaled upon the continent. For more than a thousand feet the two rows of stately trunks lift their rounded tops fifty or sixty feet in air, and here and there in the neighboring field, still older ones tower up and up above them. There are several of these whose age can scarcely be guessed, but an inhabitant of a neighboring island, now nearly eighty years old, remembers that in her earliest childhood they looked just as they do now.[67]

Kingsley otherwise accessed the island via the water at two points: one to the north of the plantation house and another at a deep-water access on the eastern side of the island.

In 1823, Kingsley was appointed a member of the Legislative Council of Florida by President James

63. Barbara P. Prettyman and John C. Whitehurst, *Archeological and Historical Investigations of the Chimney Stabilization Project, Tabby Cabin East 7 and Tabby Cabin East 12, at the Kingsley Plantation* (Duval County, Florida: NPS Technical Report, 2012); see also John C. Whitehurst, *Archaeological and Historical Investigations of Proposed Boat Dock Construction at the Kingsley Plantation, Timucuan Ecological and Historic Preserve and the Fort Caroline National Memorial, Jacksonville, Florida,* CRM Report/File Number: TIMU-00-001, August 2000, 40.
64. Karen Jo Walker, "Kingsley and His Slaves: Anthropological Interpretation and Evaluation," 74.
65. Julia B. Dodge, "An Island by the Sea," *Scribner's Magazine* 17 (September 1877), 659; Stovell, 76, citing an interview by Rose Shepherd with William Hawley, June 24, 1940, typescript, Jacksonville Libraries, Main Library, Jacksonville, Florida, 3. Stovell points out that Mary Sammis's recollections, as well as those cited by Dodge, should be interpreted with caution, but that the size of the trees described by Dodge in 1877 suggest that they were planted at least as early as the time of Kingsley's ownership.
66. Daniel L. Schafer, *Anna Kingsley* (St. Augustine, Florida: St. Augustine Historical Society, 1994; revised and expanded edition, 1997).
67. Julia B. Dodge, "An Island by the Sea."

Monroe.[68] In 1828, while living at his plantation at Fort George Island, Kingsley published what would become a notable pro-slavery work, *Treatise on the Patriarchal, or Cooperative System of Society, as it Exists in Some Governments, and Colonies in America, and in the United States, under the Name of Slavery, with its Necessity and Advantages*. Reprinted three times (in 1829, 1833, and 1834), the treatise was widely read and influential on a national level. However, the treatise was partially ignored in terms of its argument for equitable treatment for free people of color. When the treatise was quoted, it was normally only the pro-slavery portions of the discussion that were mentioned.

In the work, Kingsley outlined his thoughts regarding slavery, including the notion that "freed people of color" should hold nearly the same freedoms as whites, including property ownership and ownership of enslaved persons. Kingsley defined three tiers of citizens in Florida: white people; free people of color, whether from Africa or native to the Americas, and mulattos; and enslaved persons. Kingsley believed that, to keep enslaved persons in subjugation, free people of color must be encouraged to ally with white people by allowing them personal freedoms, such as the choice of a marriage partner and the opportunity to participate in the civil affairs of the territory, excluding holding office. This would require separate policies to maintain order in Florida: treating the "slave with justice, prudence, and moderation" and keeping the "free coloured [sic] population interested in preserving peace and good order among the slaves and being firmly attached to the side of whites by having the same interest."[69]

Concerned by increasing racism in territorial Florida, and fearing for the safety of his mixed-race children, Zephaniah Kingsley established a colony for members of his family and freed formerly enslaved persons in Haiti. Aware of the rich agricultural lands in Haiti from time he had spent there in the 1790s, Kingsley purchased a 32,000-acre property at what is now the northeast corner of the Dominican Republic.[70] Kingsley was concerned by laws being enacted in Florida to restrict the activities of freed African Americans as well as enslaved persons. Laws had been passed in Florida that forbade interracial marriages and prevented the children of mixed-race couples from inheriting their parents' property. Kingsley also established the colony in Haiti in response to President Jean Pierre Boyer's plea for freed people of color to relocate to the island, which had become the only free Black republic in the Western Hemisphere in 1804.[71]

In 1831, Zephaniah Kingsley sold Fort George Island to his son, George Kingsley. However, George Kingsley sold the island back to his father in 1836. In October 1836, George Kingsley and his wife, Anatoile, left for his father's new plantation in Haiti. Anna Kingsley also moved to Haiti with her youngest son, John Maxwell Kingsley, in 1837, followed by other freed African Americans, mixed-race family members, and enslaved persons from the Kingsley Plantation. Following Anna Kingsley's move to Haiti, the plantation house and kitchen remained unoccupied for several years.[72]

King and Gibbs Ownership, 1839–1842

In 1839, Zephaniah Kingsley sold the Fort George Island plantation to his nephews, Kingsley Beatty Gibbs and Ralph King.[73] The sale of the property included forty of Zephaniah Kingsley's enslaved persons. Gibbs and King continued to grow cotton on the island, although they are also known to

68. Hartrampf, *Main House Historic Structure Report,* 17.
69. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 44.
70. Schafer, *Anna Madgigine Jai Kingsley*, 89; Sarah Richardson, "Zephaniah Kingsley: Champion of Free Blacks," accessed April 2024, https://www.historynet.com/zephaniah-kingsley-champion-of-free-blacks/.
71. Schafer, *Anna Madgigine Jai Kingsley*, 45.
72. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 45. Kingsley promised his enslaved workers their freedom if they worked in Haiti for nine years; the enslaved persons left in Florida did not receive this promise.
73. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 45.

have grown sugarcane for commercial purposes. Kingsley Gibbs was involved in regional politics, serving on the Legislative Council of the Territory of Florida for St. Johns County in 1839–1840. Gibbs supported the minority view that favored organizing separate territories in East and West Florida. Following his resignation from his post as Clerk of Superior Court in 1841 and his marriage to Laura M. Williams of Savannah, Gibbs moved to Fort George Island.[74]

Gibbs Ownership, 1842–1853

In 1842, Kingsley Gibbs purchased Ralph King's share of the island, while also satisfying the remaining mortgage held by Zephaniah Kingsley on the island.[75] As indicated in his journal, Gibbs continued to grow crops similar to those cultivated by Zephaniah Kingsley, including cotton, corn, sugarcane, potatoes, arrowroot, and peas.[76]

During his early years of ownership, Gibbs lived for part of the year in St. Augustine, Florida. After marrying for a second time, he moved to the island full time. It was around this time, on March 3, 1845, that Florida was admitted as the twenty-seventh state of the United States.

By 1840, Gibbs owned fifty enslaved persons; twenty-seven were men and boys, and twenty-three were women and girls. Twenty were under the age of ten.[77] In 1842, Gibbs had to return twenty-eight of the enslaved persons he had purchased to settle the mortgage on the plantation; however, by 1850, Gibbs owned fifty-four enslaved persons and was "both the largest landowner and largest slaveholder in the St. Johns District of Duval County, Florida."[78] Twenty-nine of the enslaved persons he owned were men and boys; twenty-five were women and girls. Twenty-five were under the age of ten.[79]

Gibbs's attitude toward his enslaved persons appears to have been less paternal and more proprietary than that of Zephaniah Kingsley, based on his assignment of generic ages to the enslaved children in the 1850 census list.[80] Plantation staff also included workers other than enslaved persons, including John L. Williams, plantation carpenter between 1841 and 1850, and overseer W. H. Fitzpatrick. The 1850 census also lists engineer, Edward J. Johnson; ship builder, John Bell; inspector, Hardie H. Philips; pilot, John Daniels; and Mary Wallis as members of the Gibbs household.

In 1850, Kingsley Beatty Gibbs established a steam-powered sawmill on the south bank of the St. Johns River, which he called Mayport Mill. He is also thought to have established a blacksmith and repair shop on the property.[81] In 1852, however, Gibbs and his wife relocated to St. Augustine, leaving the house generally unoccupied between 1853 and 1859.[82]

Lewis Ownership, 1853–1854

In 1853, Gibbs sold several of his properties at once, suggesting that he was having financial problems. These properties included Fort George Island, Big Sister Island, Little Sister Island, Batton Island, and Fanning Island, all of which were sold to John Lewis in 1853 for $12,500.

Thomson Ownership, 1854–1860

After owning the property for less than six months, John Lewis sold Fort George Island and the other holdings to Charles A. Thomson of

74. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 45.
75. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 45.
76. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, citing Fretwell, 17–19.
77. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 51–52.
78. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study*, 53.
79. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 53.
80. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 53.
81. Carl D. McMurray, *Report on Archaeological Investigations at the Kingsley Plantation Garden, Phase II* (Tallahassee: Bureau of Historic Preservation, State of Florida, 1983), 12–13.
82. Hartrampf, *Historic Structure Report, Main House*, 18.

South Carolina for the same price. Thomson was one of the largest enslavers in the South at the time. According to historian Daniel Stowell, it is not clear whether Thomson ever lived on the island, although he sent approximately fifty enslaved persons to cultivate the plantation, with J. A. Breeden serving as overseer.[83]

In 1855, Thompson died intestate. His son, John H. Thomson, administrator for his father's estate, listed the island for sale.[84] In the 1857 advertisement, Thomson noted:

> FOR SALE. THE PLANTATION known as Fort George, situated at the mouth of the River St. John's, East Florida. The place has been well and favorably known for many years, and a detailed description is therefore unnecessary.
>
> Upon the principal Island there are upwards of 1,060 acres of high land, of which 400 are in a state of cultivation. The soil is fertile, and produces excellt [sic] crops of Cotton and Sugar. Besides the high land, there is a large body of marsh land belonging to the Plantation, easily susceptible of drainage and high cultivation, or being used for manuring purposes. There is a vast amount of shells, from which the best lime could be obtained in abundance. There is a comfortable Dwelling House, with all necessary out buildings and quarters for 60 Negroes. The climate is also perfectly healthy for Whites and Blacks during the whole year. The line of Steamers from Charleston pass [sic] twice a week, thus offering the best transportation and market facilities.[85]

In 1858, the enslaved persons from the estate were delivered to Charles Thomson's heirs, leaving the buildings on the island empty.

Barnwell Ownership, 1860–1866, and the Civil War, 1861–1865

In 1860, Thomson's daughter, Charlotte, and her husband, Charles H. Barnwell, purchased the Kingsley Plantation property for $6,280 and moved to the island. They brought with them twenty enslaved persons.[86] Photographs from the 1860s illustrate the character of the property (Figure 4). As noted in the Kingsley Plantation Cultural Landscape Report:

> An 1860s photograph of the eastern portion of the plantation house shows the development of walkways and roads, including a shell road that appears to be an extension of Palmetto Avenue heading north to a wharf/dock at the river. Paths extended along the front of the house in an east-west direction, as well as in the background of the photo . . . . A portion of Cedar Avenue, a tree-lined shell road lined with cedar trees, also appeared in this photograph. [87]

The Barnwell family owned the island throughout the Civil War. When Florida seceded from the United States, the Barnwells had only managed the property for one growing season. Charles and Charlotte Barnwell likely occupied the property with enslaved persons they had inherited from their parents. Little is known about farming operations on the property during the war.

In March 1862, Federal soldiers captured nearby Fernandina and St. Augustine and established a base at Fort Steele near the mouth of the St. Johns River at Mayport Mills. Both sides fought to maintain control of the river, which was important to the Confederacy for shipping supplies in and out of the state. In October 1862, Federal forces took control of the St. Johns River by successfully attacking Confederate artillery positions on St. Johns Bluff. Once the Federals were in command of the river, their gunboats patrolled the river to enforce a blockade of northeast Florida.

83. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 58.
84. Hartrampf, *Main House Historic Structure Report,* 18.
85. *The Florida Republican*, March 18, 1857.
86. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 59, 74.
87. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 33–34.



Figure 4. An 1860s photograph of the Main House at Kingsley Plantation, with roads and walkways visible. (Source: TIMU archives, courtesy of Kevin Hooper, as cited in Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 34)

Many owners of enslaved persons began to move their enslaved persons inland, away from the river and Federal forces. Nonetheless, many enslaved persons were able to escape bondage by crossing the river. More than 1,000 enslaved persons and freed people from northeast Florida are known to have joined the Federal forces or settled in refugee camps.[88] Some of the enslaved persons who gained their freedom during and after the Civil War settled in the region afterwards, in an area where there was a strong Gullah Geechee presence.[89]

In 1863, Charles H. Barnwell joined Company D of the 5th Battalion, Florida Cavalry, CSA, as a private.[90] It is likely that he moved the family away from the isolated island at the time, given the Federal presence in the region. He worked in a hospital until 1864 when he was transferred to the Medical Purveyor's Office in Quincy, Florida. On May 10, 1865, Barnwell was captured and became a prisoner of war when Confederate Maj. Gen. Sam Jones surrendered the region to United States Brig. Gen. E. M. Cook at Tallahassee. Barnwell was paroled and allowed to return home.

Beach and Keeney Ownership, 1866–1869

Following the Civil War and the abolition of slavery, many of the large landowners in the South, including those in northeast Florida, could no longer afford to maintain their plantations without enslaved labor. In 1866, the Barnwells sold a half interest in the Kingsley Plantation property to Charles's brother, Bower W. Barnwell. However, deed records suggest that the brothers together sold the entire island later that year.[91] The property was purchased by George W. Beach and Abner C. Keeney of New York, reflecting a broad trend of northern investment in southern property following the war. Records suggest that Beach and Keeney were absentee landlords. Between 1866 and 1869, the plantation house likely remained uninhabited.

Freedmen's Bureau reports reveal several freed families remained on the island and continued to cultivate the land, which was divided into a series of small plots.[92] For example, in "July 1868, the Freedmen's Bureau issued rations to Lou Wallace, his wife, and four children, and to William Bradley, his wife, and two children. Each family was indicated as cultivating 10 acres of land."[93] Life for freed people may have changed little following emancipation. Ethnographical studies of the Kingsley Plantation and its descendants suggest that the harsh conditions of subsistence

88. National Park Service, *The River War: The Timucuan Preserve in the Civil War; Timucuan Ecological and Historic Preserve*, pamphlet.
89. Although no direct connection has been identified between Kingsley Plantation and the Gullah Geechee community, the plantation (and all of eastern Duval County) is included in the Gullah Geechee Cultural Heritage Corridor, accessed April 2024, http://www.gullahgeecheecorridor.org/.
90. Hartrampf, *Main House Historic Structure Report,* 19.
91. Hartrampf, *Main House Historic Structure Report,* 19.
92. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 61; Hartrampf, *Main House Historic Structure Report,* 19.
93. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 61.

farming and the expectations of former enslavers, many of whom were now employers, still dictated the lives of many freed people.[94] Based on research conducted for archeological investigations on site, John Whitehurst concluded that the tabby slave cabins were occupied by enslaved persons from their construction through the Civil War and by freed people during the late 1860s and 1870s.[95]

Rollins Ownership, 1869–1906

In 1868, Florida was readmitted into the United States after submitting a successful application. Northerners continued to express an interest in the area. During the Reconstruction period, a new type of investor began to purchase property along the Florida coast.[96] Primarily from the northern states, these investors sought to capitalize on the opportunity to acquire the relatively inexpensive agricultural land that resulted from the collapse of the plantation economy, and they worked to revitalize agricultural activities while considering ways to develop recreational amenities that might attract tourists.

One northern investor interested in the property along Florida's coast was John F. Rollins, a New Hampshire native and pharmacist. In December 1868, Rollins visited Fort George Island and investigated the feasibility of purchasing the island.[97] In early January 1869, he and two companions again traveled to Fort George Island, exploring the property and camping in the abandoned plantation house during part of their visit. In March 1869, Beach and Keeney sold the island to Rollins and his partner, Richard H. Ayer.[98]

When Rollins arrived at Fort George Island, free, formerly enslaved families continued to occupy the tabby cabins. During Rollins's visit in the winter of 1868–1869, he noted that Andrew Fielding, a formerly enslaved person who served as caretaker, lived in one of the cabins with his wife Charlotte.[99] Before John Rollins returned to New Hampshire, he left $20 with Andrew Fielding to "plant cane on Fort George."[100] Hannah Rollins recalled that nine formerly enslaved families lived in the cabins when she and her sons arrived at Kingsley Plantation in 1869.[101]

In her diary, Hannah Rollins described the plantation house, the domestic precinct including the tabby barn, mule yard, and outbuildings, and an avenue of water oaks and young cedar trees in front of the house, described as overgrown.[102] She noted that the roads on Fort George Island were in poor condition, the fields were overgrown, and that the tabby slave cabins were in a state of decline, although occupied. Hannah Rollins described existing outbuildings including an octagonal gin house, a cotton house constructed of

94. Antoinette T. Jackson, and Allan F. Burns, *Kingsley Plantation: EthnoHistorical Study of the Kingsley Plantation Community* (Gainesville: University of Florida, January 2006), 83.
95. Prettyman and Whitehurst, *Archeological and Historical Investigations of the Chimney Stabilization Project, Tabby Cabin East 7 and Tabby Cabin East 12, at the Kingsley Plantation, Timucuan Ecological and Historic Preserve,* 35.
96. For purposes of this discussion, the Reconstruction period is defined as 1861–1900, as indicated in National Park Service, *The Era of Reconstruction, 1861–1900, A National Historic Landmarks Theme Study*, 2017.
97. John F. Rollins, "1868–1869 Notebook," copied from the original by Dena Snodgrass, 1953, 5. Timucuan Ecological and Historic Preserve Archives.
98. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 61.
99. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 74.
100. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 61, citing *Notebook of John F. Rollins*, 8, 11.
101. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 74, citing *Notebook of John F. Rollins*; Hannah B. Rollins, "Ft. George Island," transcription by Gertrude Rollins Wilson; Gertrude Rollins Wilson, "Notes Concerning the Old Plantation," 3.
102. Hannah Rollins, diary. Excerpts transcribed by unknown person, probably Gertrude Rollins Wilson. Copy of handwritten document in Timucuan Ecological and Historic Preserve Archives.

vertical planks, log mule sheds, a well, and the tabby barn, which was surrounded by a mule yard. She identified a structure on the east lawn as possibly a prison or a smokehouse. She also noted that an enslaved person-tenant graveyard, located under an old oak tree, was visible from a sand road that connected the plantation house with the slave cabins.[103]

As noted, free Blacks remained on Fort George Island in the years following the end of the Civil War (Figure 5). Those who had been able to acquire land farmed their property, while others worked as sharecroppers. The Freedman's Bureau initially provided rations but moved to end government relief programs, instead moving to have free Blacks commit to one-year labor contracts. At the same time, the Florida legislature passed laws to attempt to regulate the behavior of formerly enslaved people, in some cases forcing them into unpaid labor with planters and business owners.[104]

The free Blacks who worked for John Rollins negotiated the terms of their labor, and they received a house and ground for a garden, as well as weekly food rations.[105] The Rollinses made many improvements and changes to the property during their tenure. John Rollins planted about 100 acres of orange trees for commercial production, while replanting sugarcane and cultivating corn, sweet potatoes, and oats in the overgrown fields.[106]

Rollins's improvements to the domestic precinct included construction of a two-story wood-framed carriage house near the tabby barn between 1870 and 1875. (The carriage house was no longer standing when the State of Florida purchased the property in 1955.)[107]



Figure 5. Formerly enslaved family at the Kingsley Plantation, with slave cabins in the background, circa 1870. (Source: State Archives of Florida, Florida Memory collection, image no. RC04146, https://www.floridamemory.com, accessed March 2024)

In 1875, John Rollins sold 217 acres on the north side of Fort George Island to his brother, Edward H. Rollins. The sale included the domestic precinct of the Kingsley Plantation.[108] It appears that John, Hannah, and Gertrude continued to live in the house after the sale.

In 1877, Rollins began expanding the main house. He also added a covered walkway between the main house and the kitchen house.[109] An article by Julia Dodge and published in *Scribner's Magazine*

103. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 4.
104. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study.*
105. Marshall, *Special History Study for Timucuan Ecological and Historic Preserve on the Enslaved Inhabitants on Fort George Island,* 69.
106. Gertrude Rollins Wilson, Notebook. Entry for 25 November 1868 in "Memoirs of Mrs. Millar Wilson," 1952. Timucuan Ecological and Historic Preserve Archives.
107. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 69; Hartrampf, *Main House Historic Structure Report,* 19; Gertrude Rollins Wilson, 5; National Park Service, Southeast Region, Cultural Resources, *Historic Structure Condition Assessment Report: Kingsley Plantation Barn, Timucuan Ecological and Historic Preserve*, June 2003.
108. Hartrampf, *Main House Historic Structure Report,* 19.
109. Hartrampf, *Main House Historic Structure Report,* 19.

in 1877 offered a detailed description of the plantation during the Rollins period, including the cedar-lined avenues that approached the house and the impressive shell-paved roads that crisscrossed the island.[110] Gertrude Rollins Wilson remembered other improvements made by her father in the 1880s, including plantings, fences, a tabby walk to the river, and other amenities.[111] She also described the slave cabins, noting that there was "a fig tree in front of every cabin and a well for every two cabins," and small gardens behind each cabin.[112]

Severe freezes during the winters of 1894 and 1895 destroyed Rollins's citrus crop. The loss of the citrus crop signaled the end of large-scale agricultural production on the island.[113]

Tourism and Recreational Use, 1874–1955

Despite Rollins's investment in the agricultural viability of his property, it appears that he was unable to make a sufficient living. During the early 1870s, Rollins began to "[make] a variety of efforts to draw northern visitors to Fort George Island."[114] In 1873, Rollins and his partner, Richard Ayer, began to sell off portions of Fort George Island as lots for development. After surveying the southern portion of the island, they divided it into eight lots, which they later sold. Approximately 170 acres of the island were purchased by various individuals or family groups.

Rollins later formed a partnership with Dr. George R. Hall and William F. Porter. Together, they built the Fort George Hotel on the east side of the island in 1875. Rollins also formed the Fort George Island Association in 1877 to promote the sale of more lots on the island. The Fort George Island Association soon had the entire eastern and southern portions of the island platted into various sized parcels for sale. Road improvements were made as development increased. On the south end of the island, shell mounds as high as 40 feet were described as the source of road-building material. Prehistoric artifacts were found in the mounds as they were excavated to pave the roads, and the mounds quickly began to disappear.[115] Despite the development of island roads, the primary entry to the island was still via water. By this date, steamboats operated between Jacksonville and Fort George Island and other river-fronting properties.[116] George Barbour's 1884 publication, *Florida for Tourists, Invalids, and Settlers*, noted the popularity of the St. Johns River for steamboat touring and described the large estates, each with its own pier, and the fields and orange groves visible from the river.[117] African American labor continued to remain important to the plantation throughout this period.

In 1884, Edward Rollins sold his properties on Fort George Island to Jonathan C. Greeley and Charles Holmes, who formed the Fort George Island Company in Boston. It assumed the mortgage held by the Rollins family and purchased about 650 acres of land on the island.[118] The Fort George Hotel burned down in 1888 and was not rebuilt.[119]

Some of the slave cabins remained occupied into the 1880s, though many were in ruins. Some of the

110. Dodge, 658–659.
111. Wilson, 5.
112. BX69 FOL37, Rollins memories.PDF, Conditions at Kingsley Plantation in 1868 as Observed by Gertrude Rollins, typed copy.
113. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 63.
114. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 62.
115. Wilson, 2.
116. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 98; Fort George Island Association, 3.
117. George Barbour, *Florida for Tourists, Invalids, and Settlers: Containing Practical Information Regarding Climate, Soil, and Productions; Cities, Towns, and People; The Culture of the Orange and Other Tropical Fruits; Farming and Gardening; Scenery and Resorts; Sport; Routes of Travel, Etc. Etc.* (New York: D. Appleton and Company, 1884), 108.
118. Hartrampf, *Historic Structure Report, Main House*, 20.
119. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 51.

cabins were adapted for different uses such as animal shelters.[120]

Wilson Ownership, 1906–1923

John Rollins died in 1905, and his wife, Hannah Rollins, died the following year. Their daughter Gertrude, with her husband, John Millar Wilson, purchased the remaining family interests on the island, which included the plantation house complex. They also undertook the management of the Fort George Island farm, possibly attempting to bring it back into commercial production. The Wilsons' stay on the island, however, was short lived, and the couple moved to Jacksonville in 1912.[121] The Wilsons maintained ownership of the property, possibly using the plantation house as a vacation home. The plantation house complex otherwise remained vacant until circa 1920. Photographs from the 1910s show the slave cabins to be unoccupied and in a condition of decline.

Fort George Club, 1923–1955

Parts of the island were further developed during the 1920s and 1930s, including the construction of a series of clubhouses and hotel buildings. During this period, much of the agricultural use ceased, and former agricultural fields were replaced by successional woodland growth.

In 1923, John and Gertrude Rollins Wilson sold their interest in the property, totaling 208 acres and including the plantation house complex, to retired Rear Admiral Victor Blue and a group of investors that had formed the Fort George Corporation. The group also established the Army and Navy Country Club of Florida, chartered in 1923, and leased 58 acres from the Fort George Corporation.[122] The group used the plantation house as the club headquarters until 1926, when they built a new building that was completed in the following year. The new clubhouse was designed by Theodore E. Blake of the architectural firm Carrère and Hastings of New York City, who was a member of the club and apparently donated his services. The two-story building was constructed of "a tabby-like mixture of oyster shell and cement," with the roof covered with "fire-proofed hand split cypress shingles."[123] At the same time, the organization further subdivided and platted the land, and the road that connected the island to Jacksonville was also completed.[124] Six bungalow structures were built within the vicinity of the new clubhouse.[125] Other improvements included landscape plantings and construction of a large circular driveway in association with Palmetto Avenue south of the plantation house.

In 1935, Gertrude Rollins Wilson was interviewed regarding her life at Kingsley by representatives of the Federal Writers' Project, a New Deal program initiated in 1934 to record local stories of historical interest around the United States. At the same time, architects associated with the Historic American Buildings Survey, a new federal architectural recordation program, conducted a survey of the plantation house, kitchen house, and one of the slave cabins.[126] Wilson's descriptions of the property for the Federal Writers' Project appear to have served as the basis for the written portion of the HABS report.[127]

In March 1936, the Fort George Club clubhouse caught fire. The tabby walls of the first floor

120. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 74, citing photograph of Cabin W-1 in TIMU archives.
121. Hartrampf, *Main House Historic Structure Report,* 20.
122. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 96.
123. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 97.
124. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 98.
125. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 100.
126. Hartrampf, *Historic Structure Report, Main House*, 20.
127. Historic American Buildings Survey, "Fort George Island, near Fort George, Florida; House of Anna Madgigine Jai and Slave Quarters – Driver's Cabin," HABS-FLA 16-FO GEO (Jacksonville, Florida: Historic American Buildings Survey, 1934), 2.

survived the blaze, and the club rebuilt the clubhouse using insurance money.[128]

By the mid-1940s, membership in the Fort George Club declined, and the members voted to cease club operations in 1948.[129] The property was listed for sale, but the sales agent failed to find a buyer.

State Park Development, 1955–1991

By the early 1950s, the Florida State Park Board had begun to express an interest in the property due to its historical and recreational value. The sales price of $45,000, however, was considered too high by the state legislature. Acquisition of the property continued to be debated for several years; in the meantime, no other offers were made that were acceptable to the owners. In 1955, "the Governor and Cabinet ordered the Park Board to purchase the Fort George Clubhouse and immediate surroundings" for the full asking price of $45,000.[130] The property, which at the time included the plantation house complex—the main house, kitchen house, and barn—was to form a new park administered by the State of Florida. Most of the cabins were purchased by the state in a separate sale in 1966; cabins W15 and W16 at the far west end of the semi-circle were purchased later (Figure 6).

The State of Florida opened the main house for public tours in 1958, for interpretation to the antebellum period (Figure 7). The State retained the Rollins family additions and furnished the house with period furniture and accessories, including some of the Gibbs's family furniture. [131]

In 1958, the Florida Department of Natural Resources Division of Recreation and Parks completed repairs to the primary buildings and opened the plantation to the public for tours.[132] The state also undertook several projects within the landscape to support public access and use of the property (Figure 8).



Figure 6. Entrance to Kingsley Plantation State Park with tabby slave cabins visible adjacent to road, 1950.



Figure 7. Opening ceremonies, Kingsley Plantation

128. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 103.
129. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 103.
130. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 59.
131. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 105.
132. Hartrampf, *Main House Historic Structure Report,* 21.



Figure 8. Aerial view of Kingsley Plantation looking north during State of Florida ownership of the property, circa 1955–1991. (Source: TIMU archives, "State of Fla Era ca. 1955–1991," KP aerial view c820114.jpg.)

The state also supported projects to document and protect the historic significance of the property (Figure 9). In the early 1960s, archeologist Charles Fairbanks began investigative work in the area around the slave cabins. In 1967, archeologist Henry A. Baker conducted excavations in the basement of the plantation house, recording several major structural alterations made to the building over time. Baker later completed a study of the circulation systems associated with the plantation titled *Roads and Walkways at the Kingsley Plantation*.[133] Fairbanks continued working at the property, studying four of the slave cabins in detail in 1974. Through his investigations, Fairbanks identified many "Africanisms" among the artifacts and contributed to an understanding of how the enslaved people remained close to the cultural and religious values of their countries of origin. According to archeologist Karen Jo Walker, the work conducted by Fairbanks had "a far reaching impact on the anthropology of plantation and slave life."[134]



Figure 9. Kingsley Plantation, circa 1970. The Florida State Archives collection identifies this image as follows: "Unidentified man looking at a Kingsley Plantation building - Fort George Island, Florida, circa 1970, N049279 Photographer: Charles Lee Barron (1917–1997)." (Source: General collection M99-26, Charles Barron photographs, 1951-1977; Box 1, FF9 State Archives of Florida, Florida Memory, https://www.floridamemory.com/ items/show/71600, accessed March 2024)

In 1969–1971, the State of Florida undertook repair and restoration work at Cabin E-1 to interpret the finished character of the cabins during the period of occupancy.

Kingsley Plantation was listed in the National Register of Historic Places on September 29, 1970,

133. Baker, *Roads and Walkways*.
134. Karen Jo Walker, "Kingsley and His Slaves: Anthropological Interpretation and Evaluation," 16. Summary of archeological studies conducted at Kingsley Plantation from 1967 through 2012, provided by John Whitehurst, Cultural Resources Specialist/Archeologist and Historian, and Anne Lewellen, Museum Curator, of Timucuan Ecological & Historic Preserve. In 1988, archeologist Karen Jo Walker, then a graduate student at the University of South Carolina, analyzed material recovered by John Bostwick at Cabins W-3 and W-6 in 1981.

as a site of national significance.[135] In 1971, the kitchen house opened for public tours.[136]

In 1975, the state added a formal entry gate south of the slave cabins. The need for a gate was articulated in correspondence between the City of Jacksonville Department of Public Works, and the State of Florida Department of Natural Resources. Because the city owned the road and associated right-of-way, the state was required to seek permission to close the road at night and to work with local property owners to approve the change. At the time, the road was known as Admiral Blue Road.[137]

Between 1978 and 1979, a gravel parking lot was constructed south of the tabby barn to accommodate visitors. Archeological investigations by Carl McMurray and Marsha Chance indicated the area had been used for a dump or a general work yard during the plantation era and was the location of a club-era bungalow.[138]

Timucuan Ecological and Historic Preserve, 1991–2022

On February 16, 1988, the Timucuan Ecological and Historic Preserve was established by Congress with the passage of Public Law 100-249.[139] The 46,000-acre preserve was established "to administer those lands . . . within the preserve in such a manner as to protect the natural ecology of such land and water areas in accordance with this Act and the provisions of law generally applicable to units of the National Park System." With designation of the preserve, Congress sought to protect the complex salt marsh and estuarine ecosystem, as well as several important historic and prehistoric sites in the valley between the lower St. Johns and Nassau Rivers in Florida. The preserve, which was to become a unit of the National Park System, was also "to provide opportunities for the public to understand, enjoy, and appreciate these resources."[140]

The preserve as established included the Kingsley Plantation on Fort George Island. On October 1, 1991, the NPS took possession of the Kingsley Plantation complex from the State of Florida. Over the course of several years between Fiscal Year 1992 and 1997, the NPS also purchased the last two surviving slave cabin ruins that had not been acquired by the state, as well as other surrounding properties to serve as a buffer for the Kingsley Plantation portion of the preserve.[141]

On December 4, 1991, a condition assessment of historic structures at Kingsley Plantation was conducted by personnel from Fort Caroline National Memorial and the National Park Service Southeast Regional Office. Recommendations for stabilization of the cabins were developed as part of a 1992 trip report. Recommended repairs included application of a lime mortar mix to the exposed tabby walls, together with removal of vegetation growing on and within the cabins.

In 1993, a Phase III archeological study of the Timucuan Ecological and Historic Preserve was conducted by Michael Russo of the Florida Museum of Natural History. The study was

135. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
136. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 105.
137. Timucuan Preserve archives at Kingsley Plantation, TIMU 8411, Box 10, Folder 28, "51-03-200-KING1435-Gate Relocation 1974-1975." TIMU/FOCA Resource Management Records, Series I: Division of Administration, Subseries D: Kingsley Plantation State Ownership Files.
138. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 60.
139. Hartrampf, *Main House Historic Structure Report,* 21.
140. National Park Service, *Timucuan Ecological and Historic Preserve General Management Plan, Development Concept Plans, and Environmental Impact Statement* (Denver, Colorado: U.S. Department of the Interior, December 1996), iii.
141. Superintendent's Annual Reports, Fort Caroline National Memorial and Timucuan Ecological and Historic Preserve, fiscal years 1992 through 1997. The specific tracts acquired are not indicated. Several reports indicate "Additional tracts were acquired surrounding Kingsley Plantation…"

designed to locate unrecorded archeological and historic sites in the preserve. In addition, several known sites were revisited to provide updated information, including Kingsley Plantation. Also in 1993, Michael Meyer of the NPS Southeast Archeological Center (SEAC) undertook archeological investigations for the installation of a proposed water line and demonstration garden at Kingsley Plantation.[142]

The NPS added a new pole barn to the maintenance compound in 1993. Interpretive signage was also added to the property in the same year—one sign was located north of one of the slave cabins, while the other was placed at the gate posts at the edge of the visitor parking area. Due to structural deterioration, four club-era bungalows were removed from the property between 1992 and 1994. A pump house was constructed in 1994 in a vegetated area south of the tabby barn. Also in 1994, the state-era gate was moved farther south. The gate was replaced with an automated system in 1996–1997. The current gate was installed in 2009. The State Park-era bulkhead was replaced in 1997–1998.[143]

From 2006 through 2012 (with the exception of 2009), a public archeology field school associated with the University of Florida's Department of Anthropology conducted investigations at Kingsley Plantation that resulted in a better understanding of the area's history, including the conditions of daily life and retention of African ideology and practices by enslaved people during the early nineteenth century based on the discovery of artifacts.[144] Led by Dr. James M. Davidson, the field school conducted excavations at the slave cabins, the sugar mill site, the tabby barn, residences along Cedar Avenue, the kitchen house grounds, and the cemetery.[145] In 2010, investigations focused on the possible site of a cemetery for enslaved people described by Rollins family members, resulting in the discovery of the cemetery site.[146] The field school investigation in 2012 especially provided information about the tabby barn, as further discussed in the Physical History of the Tabby Barn section, below.

In 2009, new wayside exhibits were installed on the property, including near the slave cabins.

HABS Documentation of Kingsley Plantation and the Tabby Barn, 1934, 2003, and 2005

HABS documentation was first undertaken at Kingsley Plantation in 1934, only a year after the National Park Service HABS program was established. The 1934 HABS documentation includes a narrative, drawings, and photographs for Anna Madgigine Jai's house and one of the slave cabins.[147] The barn is shown but not labeled on the site plan included with the drawings.

In 2003, the park entered into an agreement with HABS to document the Kingsley Plantation slave cabins.[148] The project, completed in 2005,

142. Hammersten; see also summary of archeological studies conducted at Kingsley Plantation from 1967 through 2012, by John Whitehurst, Cultural Resources Specialist/Archeologist and Historian, and Anne Lewellen, Museum Curator, of Timucuan Ecological & Historic Preserve, for research conducted for National Register Additional Documentation, 2016.
143. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 61.
144. Karen E. McIlvoy, "The Ceramics Assemblage from the Kingsley Plantation Slave Quarters," *National Park Service Archeology Program: Research in the Parks.*
145. James M. Davidson, *Preliminary [Interim] Report of Investigations of the University of Florida (2006, 2007, 2010, 2011, 2012) Historical Archaeological Field S*chool: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County, Florida (Tallahassee, Florida: National Park Service, Southeast Archeological Center, August 2006, August 2007, September 2011, March 2012, and March 2013).
146. *Superintendent's Annual Narrative Report*, Fiscal Year 2010, 10.
147. *House of Anna Madgigine Jai and Slave Quarters - Driver's Cabin, Fort George Island, near Fort George, Florida*, HABS No. 15-1, annotated with HABS FLA. 16-FOGEO.V 1
148. General Agreement between Timucuan Ecological and Historic Preserve and the Historic American Buildings Survey/Historic

included drawings and photographs for the site and slave cabins. The cover sheet drawing and site plan, and two of the photographs include the tabby barn (Figure 10). In 2005, drawings were completed for the barn. (The cover sheet, site plan, and floor plans and elevations of the barn are included in Appendix A.)

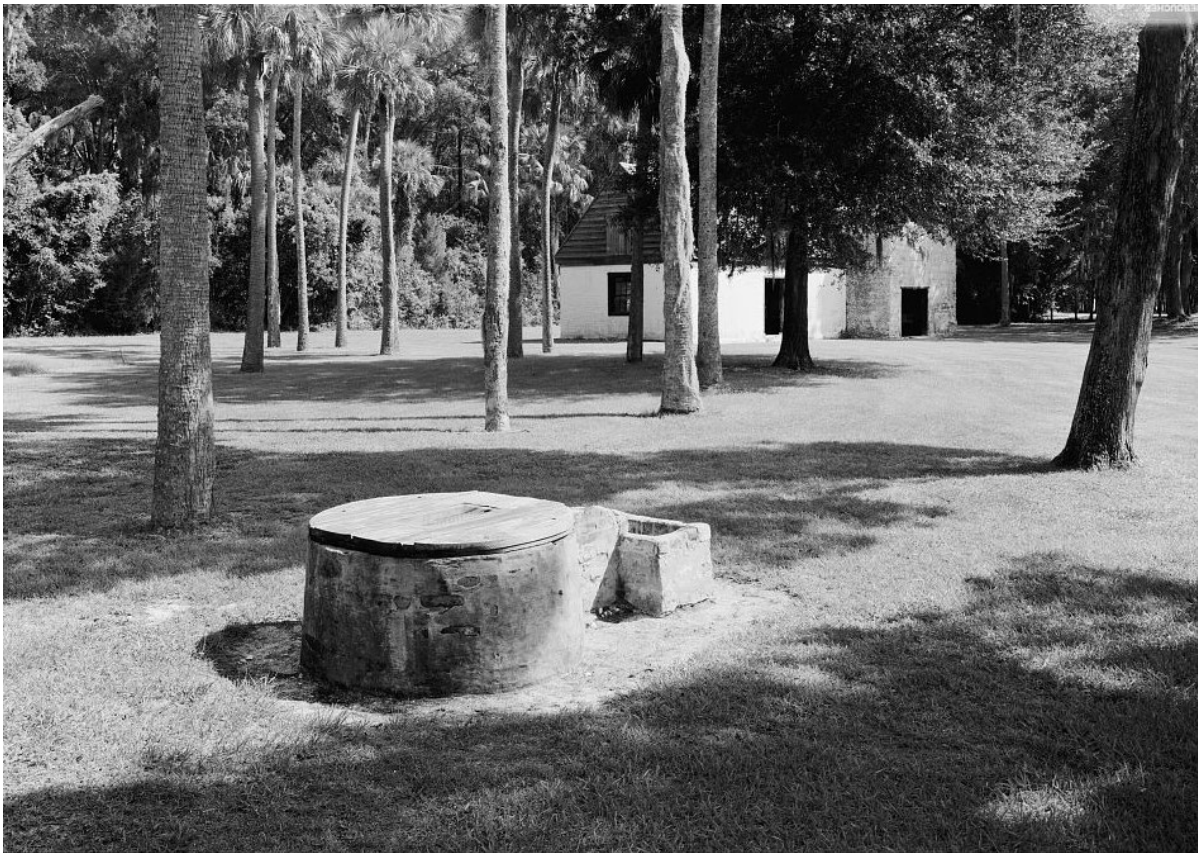


Figure 10. Historic American Buildings Survey photograph, view looking southeast toward barn with well in foreground, 2005. (Source: HABS FLA-479-9, Jack E. Boucher, Photographer, October 2005)

American Engineering Record/Historic American Landscape Survey, National Park Service, Department of the Interior; Historic American Buildings Survey documentation, Kingsley Plantation, Timucuan Ecological and Historic Preserve, Jacksonville, Duval County, Florida, Jack E. Boucher, photographer; Kingsley Plantation, drawn by Paul A. Davidson, 2003, HABS FL-478; Historic American Buildings Survey documentation, Kingsley Plantation, Barn, Timucuan Ecological and Historic Preserve, Jacksonville, Duval County, Florida, Jack E. Boucher, photographer; Kingsley Plantation, drawn by Paul A. Davidson, 2005, HABS FL-478-D.

National Register of Historic Places Additional Documentation for Kingsley Plantation, 2016

Kingsley Plantation was listed in the National Register of Historic Places in 1970.[149] Additional Documentation was prepared for the nomination in 2016 to reflect current scholarship and the findings of archeological investigations conducted since the original nomination was prepared.

The National Register Additional Documentation notes that the historic district is significant at the national level under Criteria A, B, C, and D for its association with early settlement in northeast Florida, antebellum plantation agriculture, postbellum farming adaptations to a new economy, and the twentieth-century transition to recreational use that took advantage of an emerging tourism economy. It is also significant for its association with Zephaniah Kingsley. The period of significance begins in 1791, the year John McQueen acquired the land and began to develop the plantation domestic precinct, and ends in 1955, when the property was acquired by Florida for inclusion in the state park system. One of the contributing sites in the historic district is the slave cabin precinct that contains the ruins of twenty-five structures, as well as archeological evidence of antebellum lifeways.[150] (Refer to the Analysis and Evaluation chapter for further discussion of the National Register nomination and Additional Documentation, and the significance of the property.)

The Kingsley Plantation Historic District Additional Documentation was accepted by the National Register on November 8, 2016.[151] The historic district includes the 51-acre property preserved and protected by the National Park Service as part of Timucuan Ecological and Historic Preserve. The Preserve is a unit of the National Park System that features surviving evidence of late eighteenth-century buildings, structures, and landscape features, as well as the tabby slave cabins.

Physical History of the Tabby Barn

Original Construction and Early Additions to the Tabby Barn

Primary sources of information regarding the date of construction and early modifications to the tabby barn are the on-site analysis performed by architect Herschel Shepard in the 1980s, and the archeological studies performed during the periods of State of Florida and NPS ownership of the property. Shepard's analysis of materials used in construction of the main house, kitchen house, barn, and slave cabins identified two types of tabby bricks, identified as type 1 and type 2, in the basement walls of the main house. Both brick types were used in the earliest repairs to the walls of the house. Tabby brick type 1 was also found in construction of the kitchen house and the barn, as further discussed below.

The findings of the archeological field school studies led by Dr. James M. Davidson in 2006 through 2012 are also important in understanding the sequence of construction of the plantation buildings. Investigations led by Davidson in 2012 included a focus on dating the construction of the tabby barn and "the sequence of events in the building of its two part structure."[152]

149. Snodgrass, *National Register nomination for Kingsley Plantation*.
150. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
151. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
152. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 18, citing Hartrampf, *Kingsley Plantation Kitchen House Historic Structure Report*, 2005; James M. Davidson, *Preliminary Report of Investigations of the University of Florida 2012 Historical Archaeological Field School: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County, Florida* (Washington, D.C.: Department of the Interior, National Park Service, Southeast Archeological Center, March 2013), 1.

Based on prior architectural and archeological studies, original construction of the barn is thought to date to circa 1798, during John McQueen's period of ownership. McQueen settled on Fort George Island and began lumbering operations on the St. Johns River in 1792. He constructed the residence now referred to as the main house in 1797–1798.[153]

Findings of the *Kingsley Plantation Kitchen House Historic Structure Report* note that:

> The analysis conducted by Herschel Shepard in the 1980s places all tabby brick used on the plantation buildings in a construction sequence and identifies its age relative to other materials. The chronology of use and events that occurred in the early years of the plantation support Shepard's conclusions. Tabby bricks were made using pulverized oyster shell, sand, and lime, undoubtedly all derived from local supplies on the island. Therefore, tabby brick would have been a cheaper and more readily available building material than coquina and clay brick, which were required to be imported for use. It is, therefore, reasonable to suggest that, while McQueen constructed his house with coquina block, clay brick, and wood, he would have used less costly materials in the construction of his support structures. Furthermore, he had the on-site labor support of slaves to produce tabby bricks.[154]

Herschel Shepard identified tabby brick type 1 in construction of portions of the kitchen house, as well as in the north, east, and west walls in the north wing of the barn. Shepard concluded that the tabby brick walls predate those constructed of formed tabby, suggesting that either John McQueen or John McIntosh constructed the structures of tabby brick type 1, and noting that archival documentation supports construction of the main house as by McQueen, not McIntosh. Support buildings such as the kitchen house and barn would have been needed as part of the domestic precinct, thus, the *Kitchen House Historic Structure Report* concluded that it is ". . . likely that the original builder of the Kitchen House also constructed the north end of the barn."[155] Construction is believed to have been completed by enslaved persons.[156] Kingsley repaired structures that had been damaged during the Patriot Rebellion and also constructed the addition to the tabby barn.[157] Based on Shepard's analysis and available information about the history of the plantation, it appears that Kingsley salvaged loose type 1 tabby bricks, which predated his purchase of the property, for use in repairs to the main house and other structures.

Tabby used for construction of the barn, its addition, and other structures at Kingsley Plantation is a type of concrete using oyster shells as aggregate, hand mixed and poured between wood forms in lifts of approximately 12 to 18 inches or formed in molds as bricks. The tabby was often covered with a layer of smooth lime stucco for protection.[158]

The use of tabby was advocated by Thomas Spalding (1774–1851), a lawyer, plantation owner, and U.S. Representative from Georgia. Spalding was born in Frederica, Georgia, a town with many tabby houses. Spalding wrote:

> I was born in the town of Frederica, in one of these Tabby houses; I had seen time destroy everything but them: I had seen them even sawed up into blocks, like a mass of living stone; and of such blocks, carved from Frederica, are the three first stories of the

153. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 18, footnote 20.
154. Hartrampf Engineers, Architects, Surveyors, *Kingsley Plantation Kitchen House Historic Structure Report* (Atlanta, Georgia: National Park Service, 2005), 61.
155. Hartrampf, *Kingsley Plantation, Kitchen House Historic Structure Report*, 62.
156. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
157. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 2.
158. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 2; Hartrampf, *Kingsley Plantation Main House Historic Structure Report*, 74–75; Hartrampf, *Kingsley Plantation Kitchen House Historic Structure Report*, 62–64; Stowell, 42, 71–72.

> lighthouse built at St. Simon's. The coating of plaster, which covered these houses, having fallen off, the walls exhibited the manner in which they were constructed, as well as the materials, so distinctly, that there was no difficulty in following the example.[159]

Based on his studies of the ruins at Frederica and his own experiments with the material, Spalding developed a method for tabby fabrication using reusable, interconnected molds. His technique improved the durability of tabby structures. In July 1844, Spalding wrote to N. C. Whiting of Connecticut, describing his method of tabby construction:

> Tabby . . . is a mixture of shells, lime and sand in equal proportions by measure and not weight, makes the best and cheapest buildings where the materials are at hand, I have ever seen; and when rough cast, equals in beauty stone. . . . The shells that I have used were old shells from ancient Indian Barrows, some of them of great extent scattered over our Sea Islands from Charleston to St. Johns River in Florida. The drift shells, after the oyster is dead, thrown up along the shores of our rivers, are also used, but the salt should be washed out.[160]

Spalding noted that he preferred to use whole shells, and that no salt water should be permitted on the shells or in the sand used in the tabby mix, noting: "Salt must be avoided, it produces decay."[161] He described the construction process as follows:

> Two planks as long as convenient to handle, 2 inches thick and about 12 inches wide, are made to unite and to the round of your building. These planks are kept apart by spreader pins with a double head as thus, the first head keeps the outer plank in its place, the last with the pin run through the point, keeps the inner plank firm while the workmen are filling in the material and setting it down, either with a spade or a light rammer, which, if shells, bring these into a flat position.
>
> Then, the planks at the ends are let into each other thus: with an iron wire with eye to draw it out at each round of Tabby. The corners of the building are thus: the same kind of iron wire binding the sides together.
>
> All that is necessary when you construct doors or windows, is to drop a short board across the wall between the outer and inner planks and steady it with two poles, to be drawn out at each round and replaced at the next, and so continue until you have reached the height you intend your doors and windows. When you then drop your Lintall into the Tabby Box so as to secure the next round of Tabby your wall then becomes an entire whole.[162]

He described the success of his own house at Sapelo, Georgia, which he had lived in for thirty-two years. Spalding added:

> I generally made my people mix the materials one day and put it into boxes the two following, very soft, as the better to amalgamate. 10 Bushels of lime, 10 Bushels of Sand, 10 Bushels of water make 16 feet of all. I have made my walls 14 inches thick; below the lower floor 2 feet . . . .[163]

He concluded: "N.B. The Boxes at every round should be taken off and inside up laid over the wall

159. Davis, *Tabby: The Enduring Building Material of Coastal Georgia,* 11–13, citing E. Merton Coulter, ed., Georgia's Disputed Ruins (Chapel Hill: University of North Carolina Press, 1937).
160. Gritzner, *Tabby in the Coastal Southeast: The Cultural History of an American Building Material*, 220, Appendix II, Ms. Letter, Thomas Spalding to N. C. Whiting, July 30th, 1844. In her dissertation, Gritzner noted that American Indian middens were the primary source for oyster shells used in tabby construction in the nineteenth century, and that early twentieth-century interest in archeology may have contributed to the preservation of these middens.
161. Gritzner, *Tabby in the Coastal Southeast: The Cultural History of an American Building Material.*
162. Gritzner, *Tabby in the Coastal Southeast: The Cultural History of an American Building Material.*
163. Gritzner, *Tabby in the Coastal Southeast: The Cultural History of an American Building Material.*

the day you are mixing the material. The pins are one inch above the lower edge of the plank."[164]

Although not described in Spalding's letter, production of lime was also required for fabrication of tabby. Historically, oyster shells were gathered from shellfish refuse mounds call middens, typically left by American Indians.[165] By the time Spalding was fabricating tabby, lime was being produced in kilns constructed of clay bricks, which produced a more even heat and a better-quality lime than had been made earlier by burning oyster shells over open fires in structures of pine logs known as "lime ricks."

The south portion of the barn reflects lift lines consistent with approximately 1-foot-high molds for placement of the tabby. In a report written in 2000 documenting research and investigation conducted at Kingsley Plantation, archeologists John Whitehurst and Barbara Prettyman described the construction of the Kingsley Plantation tabby slave cabins. The report noted that the cabins differ in construction from other tabby structures of the period in that, rather than using wood forms approximately 1 foot high to form the tabby, the cabins appear to have been constructed with a single, full-height mold that reached the eave line. The report noted that after the tabby hardened, the walls of the structures were roughened by chopping with a narrow hatchet, and a smooth, fine plaster was applied to the roughened surface.[166]

As determined by James M. Davidson in archeological studies conducted in 2007, an 1853 coastal survey map of the area identifies several structures as present at the Kingsley Plantation at the time, including the tabby barn (Figure 11). The barn has an L-shaped plan by that date. The 1853 map also shows a north–south road parallel to Palmetto Avenue, extending from just south of the slave cabins northward to a fence line just south of the barn. (Dr. Davidson noted that this road does not appear to have been built during the Kingsley era, especially as Palmetto Avenue had existed since the 1790s, no structures were located along the parallel road, and the Kingsley-era road symmetrically divided the arc of the slave cabins.)[167]

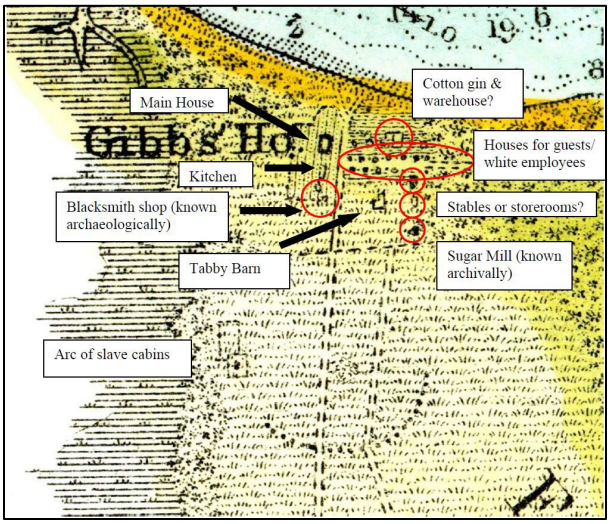


Figure 11. 1853 coastal survey map, annotated to show standing structures and structures established archeologically (left), and previously unknown structures and their inferred functions (right), from Dr. James M. Davidson, *Interim Report of Investigations of the University of Florida 2010 Historical Archaeological Field School: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County, Florida* (2011). (Source: Davidson, *Interim Report* (2011), 73, Figure 36)

164. Gritzner, *Tabby in the Coastal Southeast: The Cultural History of an American Building Material.*
165. Marshall, *Special History Study for Timucuan Ecological and Historic Preserve on the Enslaved Inhabitants on Fort George Island,* citing Schafer, *Zephaniah Kingsley*, 7.
166. Prettyman and Whitehurst, *Archeological and Historical Investigations of the Chimney Stabilization Project, Tabby Cabin East 7 and Tabby Cabin East 12, at the Kingsley Plantation, Timucuan Ecological and Historic Preserve,* 34–35.
167. James M. Davidson, *Interim Report of Investigations of the University of Florida 2010 Historical Archaeological Field School: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County Florida* (Washington, D.C.: Department of the Interior, National Park Service, Southeast Archeological Center, September 2011), 60, 73.

Rollins Era Additions

Between 1870 and 1875, John Rollins constructed a two-story wood-framed carriage house near the tabby barn (Figure 12 through Figure 15). The wood-framed structure had a gable roof and was located directly north of the barn. The carriage house was taller than the north portion of the barn. An 1875 photograph provides a view east from Palmetto Avenue, through the allée of water oaks and cedar trees along Cedar Avenue (refer to Figure 12). At the right (south) in the photograph is a picket fence and the carriage house. [168] The carriage house was no longer standing when the State of Florida purchased the property in 1955.[169]

Architect Herschel Shepard's 1981 report noted that a stucco finish, scored to resemble ashlar masonry, was present on the tabby brick walls of the barn.[170] Based on the presence of a red, scored cement-based stucco finish on the east bay window extensions of the main house, which were added circa 1878, the earliest photo in which the finish is evident on the house (circa 1886), and the finish visible on the kitchen house in the HABS photograph taken in 1934, the *Kingsley Plantation Kitchen House HSR* concludes that the finish probably dates to sometime between 1878 and 1934.[171] A scored stucco wall finish was common in the late eighteenth and nineteenth centuries. Although the finish may have been added earlier, based on the above archival documentation, this finish may have been added to all three buildings by John Rollins after 1878.[172] A concrete floor was also added to the barn at some time during the Rollins family ownership of the site.

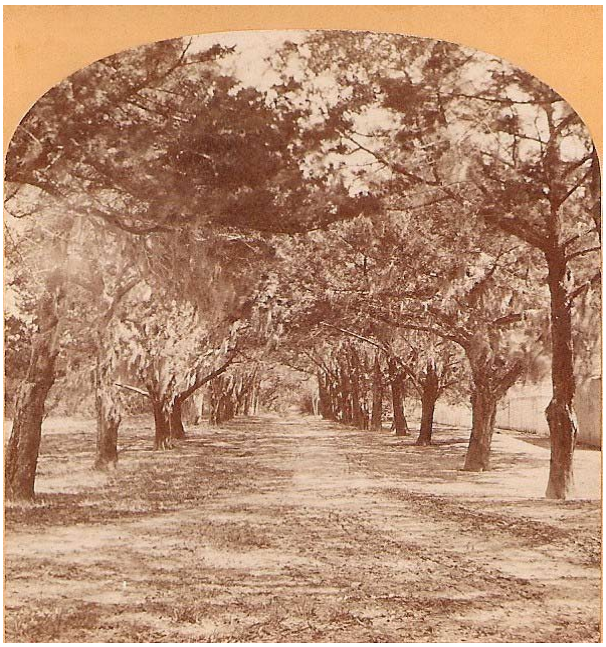


Figure 12. View east along Cedar Avenue, with the barn and carriage house visible beyond the trees at the right, 1875, from James M. Davidson, *Interim Report of Investigations of the University of Florida 2007 Historical Archaeological Field School: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County, Florida* (2007). (Source: Davidson, *Interim Report* (2007), 63, Figure 29, citing author's private collection)

168. James M. Davidson, *University of Florida Historical Archaeological Field School 2007 Report of Investigations: Kingsley Plantation, (8DU108) Timucuan Ecological and Historic Preserve National Park, Duval County, Florida* (Washington, D.C.: Department of the Interior, National Park Service, Southeast Archeological Center, August 2007).
169. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study,* 69; Hartrampf, *Main House Historic Structure Report,* 19, citing Gertrude Rollins Wilson, 5.
170. Hartrampf, *Kingsley Plantation, Kitchen House Historic Structure Report*, 70.
171. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 2.
172. Hartrampf, *Kingsley Plantation, Kitchen House Historic Structure Report*, 70.

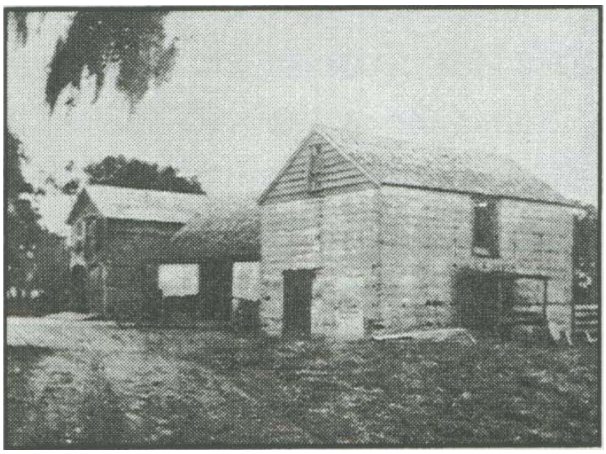


Figure 13. The two-story carriage house constructed at the north end of the tabby barn by John Rollins circa 1870–1875, view from the southwest, undated photo. (Source: TIMU archives, "View of Carriage House, Rollins Era, Undated Photo, Rollins Era 1870s-1920s," TIMU21_KP Carriage House North End of Barn ca. 1870's-80's ND.jpg; *Historic Resource Study* cites source as Tal Stanfield for National Park Service)



Figure 14. The Kingsley Plantation barn (referred to as the carriage house in the archive filename), view from the northwest, undated photo. The opening at the west elevation of the north portion of the barn appears to be arched in this image. (Source: TIMU archives, "View of Carriage House, Rollins Era, Undated Photo, Rollins Era 1870s-1920s," KP Barn with Wagon in Front RC02274.jpg)



Figure 15. The carriage house is visible to the north of the barn in this undated photo. Note that in this photograph, the barn and carriage house are covered with white paint or limewash. (Source: National Park Service, Southeast Region, Cultural Resources, *Historic Structure Condition Assessment Report: Kingsley Plantation Barn, Timucuan Ecological and Historic Preserve*)

The Barn during State of Florida Ownership, 1955–1991

By the early 1950s, the Florida State Park Board had begun to express an interest in the Kingsley Plantation property due to its historical and recreational value. In 1955, the State of Florida purchased the property, including the plantation house, kitchen house, barn, other outbuildings, and site (Figure 16 through Figure 18).



Figure 16. View of the tabby barn from the northwest, circa 1920s–1950s. Note that wood gates are visible over the openings in the exterior wall in images from this period. (Source: TIMU archives, "View of Recreation Era ca. 1920s-1950s," KP Barn with Exterior Stairs RC07716.jpg)



Figure 17. View of the tabby barn from the southwest, circa 1920s–1950s. Note that when this photograph was taken, the carriage house was no longer extant to the north of the barn. (Source: TIMU archives, "View of Recreation Era ca. 1920s-1950s,"KP Barn with Vehicle Parked in Doorway RC20278.jpg)



Figure 18. The tabby barn, view looking east, circa 1956. (Source: Florida Park Service collection, "Barn at Kingsley Plantation – Jacksonville, Florida," Florida Park Service collection, Series 236, Box 3, FF108, http://www.floridamemory.com /items/show/117413)

Proposed Repairs, 1973 and 1976

In July 1973, Herschel Shepard wrote that that the "underfired brick masonry" in the basement of the main house was deteriorating, and that similar deterioration was occurring to the brick at the kitchen house and the carriage house.[173] (As noted, the carriage house constructed by John Rollins to the north of the barn was no longer standing when the State of Florida purchased the property. References to the carriage house in correspondence from the 1970s appear to refer to the barn when mentioning the carriage house.) Shepard recommended that a trial repair be prepared as follows:

> The surfaces should be prepared by careful dusting and then cleaning with a shop vacuum. Each test area will be approximately four feet wide and the full height of the wall. Where practical, dust that has previously fallen to the floor or ground should be removed and paper, plastic or some other material should be placed on the ground to catch any dust that might fall after the treatment has been applied, thereby acting as a control for our test. The following areas were designated in the field. . . A portion of the east wall of the Carriage House, approximately six feet wide, in an area of severe deterioration where whitewash has not adhered to the upper portion of the wall.[174]

During the 1970s, it appears that the barn (referred to at the time as the carriage house) was being used for storage. Correspondence in 1976 noted: "The Carriage House will look much better after everything not of the period is removed from sight. The tractor, dugout and pump (and Gatlin gun from Fort Clinch) can be delivered to Maclay Gardens when convenient."[175]

Proposed Repairs, 1981–1982

In 1981–1982, the State of Florida made various repairs and improvements to the site and its structures. With respect to the barn, also variously referred to as the stable in this correspondence, a letter of March 1981 noted:

> As of February 25, 1981, the concrete floor and shell fill was removed from the Stable. . . . The dirt underneath the shell has been left undesturbed [sic] for further investigation by

173. "To Mr. James Stevenson, Division of Recreation and Parks, from Herschel Shepard, re. Kingsley Plantation," July 25, 1973 (Box 24, Folder 24)
174. "To Mr. James Stevenson, Division of Recreation and Parks, from Herschel Shepard, re. Kingsley Plantation," July 25, 1973 (Box 24, Folder 24)
175. To Major Ellison Hardee, District III Supervisor from Major Jim Stevenson, Chief Naturalist, re. Kingsley Plantation, Interoffice Memorandum, September 1976" (Box 10, Folder 40)

the Division of Archives and History. We plan to leave this structure closed to the public until this research is completed. [176]



Figure 19. View of the tabby barn, looking southeast, 1980. (Source: State Archives of Florida, Folklife collection, "Grounds and barn at Kingsley Plantation – Fort George Island, Florida," Photographer Peggy A. Bulger, December 12, 1980, Series 1577, Photographs P-79-707 thru P-82-155: Architecture-Houses; Box 17, FF 88, fp80416.jpg, http://www.floridamemory.com/items/show/115366, accessed March 2024)

A report developed by the Florida Department of Natural Resources, Division of Recreation and Parks, in September 1981 provided information about the tabby brick at the barn (also referred to in the report as the carriage house):

- Re. Tabby brick type 1: Found in the west, north and east walls of the north wing. Approximately 2-3/4" high, 4" wide and 8" to 8 1/2" long. In the west wall every seventh course appears to be a header course; other walls were not investigated for headers.

- Other courses are in common running bond. Protected by a lime stucco scored to simulate the tabby brick beneath, but the headers are not exposed.

- Re. Tabby Concrete: Visible in the east, south and west walls of the south wing. The tabby concrete walls are poured against the north wing tabby brick walls, which visual inspection reveals had been constructed previously. The average lift height is 12", but varies from 11" to 14". Ties are spaced approximately 5' center to center. The south wall was poured into two sections marked by an irregular, vertical 'cold joint' at the approximate center of the wall. Apparently the tabby concrete walls were not stuccoed.

- Field evidence clearly indicates that the tabby brick type 1 walls . . . of the barn preceded tabby concrete additions. Preliminary investigation indicates the tabby brick walls of. . .the barn were completely finished before the tabby concrete additions were constructed, indicating there may have been an interval of time between the construction of the tabby brick walls and the introduction of tabby concrete.

- The east wall of the north wing of the carriage house south of the door is constructed of tabby brick type 1 in poor condition and is in danger of collapse. The north wing of the barn should be closed to the public immediately, and the public should not be permitted within 25' of the exterior face of the wall. Phase II work includes stabilization of this wall, possibly using gunite reinforced with mesh wire, or in accordance with recommendations by a special consultant. . . .[177]

Minutes of a conference on November 13, 1981, regarding the Kingsley Plantation State Historic Site Structural and Site Improvements Phase I project noted: "Gunite is acceptable to repair damaged walls at the Carriage House; if possible, original stucco should be restored over the gunite. Only the north wing of the CH should receive

176. "To Major E.E. Hardee, Manager District III from Lt. W.C. Keeth, Superintendent, re. Stable Floor – Kingsley Plantation, March 6, 1981" (Box 10, Folder 46)

177. "Kingsley Plantation State Historic Site, Structural and Site Improvements, Phase I," Florida Department of Natural Resources, Division of Recreation and Parks, Florida Department of General Services, Division of Building Construction and Maintenance, Project No. NR-0157-KP-2, September 4, 1981 (Box 10, Folder 35), 22–25.

stucco."[178] (Gunite is a pneumatically applied concrete material also referred to as "shotcrete.")

In December 1981, proposed work included stabilization of the north wing of the barn by application of gunite:

> The final item regarding the stabilization of the east wall of the north wing of the carriage house (barn) will be considered as an alternate, providing there is funding available. If no funds exist, then the area will be cordoned off and closed to the public. Stabilization of the carriage house consists of applying gunite to the east wall of the north wing with strict adherence to the gunite concrete design mix of the consultant and his direction of application.[179]

On the same date, correspondence (again referring to the barn as the carriage house) documented a revised outline of the project scope, which included the following:

> . . . shotcrete a part of east wall, Carriage House; patch exposed poured tabby, south wing of Carriage House. . . . Shore west door, south wing, Carriage House in an unobtrusive manner. . . . Lime stucco entire exterior face, east wall, Carriage House.[180]

In the following year, a project description from the Florida Department of General Services, Division of Building Construction and Maintenance described the following work to be performed at the tabby barn (identified as the carriage house, parenthetically noted as referring to the barn):

> Structural stabilization and restoration of certain floor systems and walls and wall surfaces in Kingsley House and Carriage House (Barn).
>
> Provide new fill at exterior walls of Kingsley House and Barn.
>
> Rough Grade: Raise existing grade at Kingsley House and Barn by approximately 8", or original grade as determined in the field, Slope ground away from building walls to ensure and facilitate drainage, Grade to uniform levels or slopes between points, Round surfaces at abrupt changes in levels.
>
> Patch holes and severely weathered surfaces in exterior face of walls at the Carriage House (Barn), south wing.
>
> Where possible, remove deteriorated units in interior masonry partitions of Kingsley House and east wall of Barn. . . . Restore part of east wall at Barn with new tabby brick made in field.
>
> Provide temporary shoring as required for restoration of the southwest masonry wall in the basement and for restoration of the east wall of the Carriage House (Barn).
>
> Paint interior and exterior masonry surfaces not plastered in Kingsley Carriage House Barn; paint tabby concrete at barn.[181]

Non-original tabby brick is present at the east wall of the barn. Some of these repairs may date to this time period.

178. "Conference Minutes Kingsley Plantation State Historic Site Structural and Site Improvements Phase I Project No. NR-0157-KP-2, November 13, 1981" (Box 10, Folder 25), 2.
179. "To Mr. Paul D. O'Connell from Donald J. Bizzell, re. Kingsley Plantation State Historic Site Structural and Site Improvements, Phase I NR-0157-KP-2, December 18, 1981" (Box 10, Folder 26).
180. "To Mr. Donald Bizzell from Herschel Shepard, re. Kingsley Plantation State Historic Site Structural and Site Improvements, Project No. NR-0157-KP-2, December 18, 1981" (Box 10, Folder 26).
181. Scope of work items excerpted from "Kingsley Plantation State Historic Site, Structural and Site Improvements, Specifications," Florida Department of Natural Resources, Division of Recreation and Parks, Florida Department of General Services, Division of Building Construction and Maintenance, Project No. NR-0157-KP-2, March 12, 1982 (Box 24, Folder 24).



Figure 20. View of the tabby barn, looking southeast, undated photo. (Source: Florida Department of Tourism, Department of Commerce collection, "Barn at the Kingsley Plantation State Historic Site – Fort George Island, Florida," Series/Collection number: S 1047, Publicity photographs, 1940-1996; Box 1, FF23, com00585.jpg, http://www.floridamemory.com/items/show/91442)

The Barn during National Park Service Stewardship, 1991–present

1998 Gutter Installation and 2002 Reroofing Project

In 1998, gutters were installed on the barn by the NPS Historic Preservation Training Center. Materials were supplied by the park.[182]

In 2002, repairs to the roof and north wall of the barn were undertaken in a joint effort between the park and the NPS Historic Preservation Training Center. The scope of work for this effort included removal of the shingles, plywood deck, and lath from the north and south portions of the roof; anchoring the rafter plates to the tabby walls and adding additional collar ties in the south addition; realigning as much as possible the north wood-framed wall in the south addition and anchoring the wall with cable; providing an anchorage tie between the rafters and floor system in the north portion of the structure; and installing new collar ties on all rafters. On the roofs of both sections of the barn, laths were to be installed according to shingle exposure; followed by installation of lead-coated copper valley and step flashing and new shingles.[183] The total cost of the project was $37,268.[184]



Figure 21. View of the tabby barn, looking east, 1992. (Source: National Park Service, Southeast Region, Cultural Resources, *Historic Structure Condition Assessment Report: Kingsley Plantation Barn, Timucuan Ecological and Historic Preserve*, June 2003)

2004–present

By 2004, the barn was being used as an interpretive space, with benches placed on the floor within the structure.[185]

182. Project Leader, Historic Preservation Training Center to Superintendent, Preservation Training Center, Memorandum, re. Pre-Construction Meeting Notes for the Kingsley Plantation Reroofing Project, Timucuan Ecological and Historic Preserve, U.S. Department of the Interior, National Park Service, Washington, D.C., January 13, 1998.
183. "Project Agreement: Re-Roofing & Stabilization of the Kingsley Plantation Roof Barn Project, Timucuan Ecological & Historical Preserve, Kingsley Plantation, Jacksonville, Florida," National Park Service, Historic Preservation Training Center, Frederick MD, June 2001, in TIMU 8411, Series VI, Subseries A, Box 77, Folder 44, "Project Identification – PMIS 21210, Rehabilitate Two Historic Roofs", 2002 (TIMU Archives).
184. "Re-Roofing and Stabilization Kingsley Barn Roof, Timucuan Ecological & Historic Preserve, Historic Structures Record of Treatment," Historic Preservation Training Center, Department of the Interior, National Park Service, Frederick, MD, 2002, in "TIMU_006_D31_[id228322].pdf."
185. Hartrampf, *Kingsley Plantation Cultural Landscape Report*, 73.

A wood floor was added to the south end of the barn in 2009.

The existing coating on the exterior of the barn is also believed to date to this period.

Kingsley Plantation Barn Chronology

1791	John McQueen was granted Fort George Island by the Spanish as a reward for his efforts to capture the British privateer William Augustus Bowles.
circa 1798	Kingsley Plantation barn constructed by John McQueen.
1804	John Houston McIntosh purchased Fort George Island from John McQueen.
1812	The Patriot Rebellion (or Patriot War) of 1812 occurred when Americans in Florida formed an alliance with the intent to seize the colony of Florida from the Spanish and turn it over to the United States.
1814	Zephaniah Kingsley Jr., a planter and enslaver, began renting the property from John Houston McIntosh. The barn was expanded by Kingsley around this time.
1817	Kingsley purchased the plantation from McIntosh and moved to the island with his family, which included his wife Anna Madgigine Jai Kingsley.
1822–1830	Zephaniah Kingsley made improvements to the plantation, including repairs and additions to the main house and kitchen house, an addition to the barn, and construction of thirty-two tabby cabins to house enslaved persons.
1831	Zephaniah Kingsley sold Fort George Island to his son, George Kingsley.
1836	George Kingsley sold the island back to Zephaniah Kingsley.
1837	Anna Kingsley moved to Haiti with her youngest son, John Maxwell Kingsley, in 1837, leaving the plantation unoccupied.
1839	Zephaniah Kingsley sold the Fort George Island plantation and forty of Kingsley's enslaved persons to his nephews, Kingsley Beatty Gibbs and Ralph King.
1853	Gibbs sold several of his properties, including Fort George Island, to John Lewis.
1854	Lewis sold Fort George Island and the other holdings to Charles A. Thomson of South Carolina.
1858	The enslaved persons from the estate were delivered to Charles Thomson's heirs, leaving the buildings on the island empty.
1860	Thomson's daughter, Charlotte, and her husband, Charles H. Barnwell, purchased the property and moved to the island, bringing twenty enslaved persons.
1866	George W. Beach and Abner C. Keeney of New York purchased the property; freed people inhabited the property.
1869	Beach and Keeney sold the island to John F. Rollins and his partner, Richard H. Ayer; Rollins and his wife moved to the island in 1872.

1870–1875	John Rollins constructed a wood-framed carriage house immediately north of the tabby barn.
1875	Fort George Hotel constructed on east side of Fort George Island.
1905	Rollins' daughter Gertrude and her husband John Millar Wilson purchased the property.
1923	Army and Navy Country Club of Florida established at Fort George Island.
1934	HABS documentation prepared for buildings on the island, including the tabby slave cabins.
1955; 1966	The State of Florida purchased the plantation house complex, with the exception of the slave quarters, in 1955, and also acquired the slave cabins in 1966. The carriage house that Rollins added north of the barn was no longer extant by the time the State of Florida acquired the plantation house property.
1955–1988	Concrete floor added during the Rollins ownership removed from interior of barn.
1988	Timucuan Ecological and Historic Preserve established by Congress.
1991	National Park Service took possession of the Kingsley Plantation complex from the State of Florida; condition assessment of the slave cabins performed by NPS.
1998	National Park Service Historic Preservation Training Center added gutters to the barn.
2002	Repairs to the roof and north wall of the barn undertaken in a joint effort between the park and the NPS Historic Preservation Training Center.
2009	NPS added a wood floor to the south end of the barn.
2016	National Register of Historic Places Additional Documentation was prepared for Kingsley Plantation.

Physical Description and Condition Assessment

Site

Kingsley Plantation is approached from the south along Palmetto Avenue. Once within the property, Palmetto Avenue extends through the center of the plantation slave cabin precinct, a semi-circular arrangement of tabby structure ruins (Figure 22). The cabins are set in a clearing within a wooded area. Approximately 1,200 feet north of the slave cabin precinct is the domestic precinct, which includes the main house, kitchen house, barn, and other structures (Figure 23).



Figure 22. Palmetto Avenue where it passes through the slave cabin precinct, view from northeast. (Source: All photographs by the authors, November 2023, unless otherwise noted)



Figure 23. The domestic precinct at Kingsley Plantation. The kitchen is at left with the main house visible beyond the trees at right, view from southeast.

A small gravel-paved parking area is located immediately south of the barn (Figure 24). The area around the cabins is maintained in mown turf grass to allow visitor and park personnel access. A gravel walk located between two piers extends north from the parking area and west of the barn into the domestic precinct (Figure 25). A path leads from the main walk toward the south end of the barn, providing access to the structure.



Figure 24. Parking area south of the Kingsley Plantation barn. The barn is visible in the background, view from southwest.



Figure 25. Piers at north side of parking area with gravel walk in between, view from south. The Kingsley Plantation barn is visible at right.

Kingsley Plantation Barn

Measured drawings of the Kingsley Plantation barn developed as part of the Historic American Buildings Survey (HABS) are included in Appendix A. Measured drawings developed as part of this study are included in Appendix B.

Exterior

The barn is located at the north end of the Kingsley Plantation site in the domestic precinct, southeast of the Kingsley Plantation House (main house). The barn is T-shaped in plan and consists of a one-story building with an attic (Figure 26 through Figure 29). Archeological studies indicate that the original, north section of the barn, which is rectangular in plan, was built in 1798 by John McQueen (Figure 30). An addition, also rectangular in plan, was built at the south end of the barn by Zephaniah Kingsley after he began occupying the property in 1814 (Figure 31).[186]

186. Hartrampf, *Kingsley Plantation Kitchen House Historic Structure Report*, 61. The sequence of construction described in the *Kitchen House HSR* is based on studies by architect Herschel Shepard in which he identified tabby brick in portions of the kitchen house as well as in the barn. Shepard concluded that the tabby brick walls predate those constructed of formed tabby.



Figure 26. West elevation of Kingsley Plantation barn.



Figure 27. South elevation of Kingsley Plantation barn.



Figure 28. East elevation of Kingsley Plantation barn.



Figure 29. North elevation of Kingsley Plantation barn.



Figure 30. East elevation of the barn, showing the two-story portion of the barn at the south end of the building.



Figure 31. East elevation of the barn, showing the one-story portion at the north end of the building.

Roofing consists of wood shingles. The south portion of the barn has a higher roof line than the north portion (Figure 32 and Figure 33). Wood boards cover the box gable roof of the barn, and a valley forms at the interface between the north and south portions of the barn. In the northern section of the barn, wood is used for the fascia, soffit, and frieze board within the eaves (Figure 34 and Figure 35). Sheet metal underlayment is installed at some of the valleys (Figure 36).

The south section of the barn measures approximately 23 feet 1 inch in length east–west and approximately 33 feet 6 inches at the south wall. The north section of the barn intersects the north wall of the south portion, and measures approximately 38 feet 6 inches in length at the east wall, and 20 feet 2 inches at the north wall.



Figure 32. South end of the building has a higher roof line than the north end.



Figure 33. Intersection of the roofs at the south and north portions of the barn.



Figure 34. Wood shingles and eaves.



Figure 35. Wood shingles and eaves.



Figure 36. Sheet metal flashing installed at valley of west facade.

The structure at the south section of the barn consists of a continuous below-grade foundation and above-grade walls constructed of solid tabby concrete (poured in lifts) and coated with what appears to be a limewash (Figure 37). The concrete has an aggregate consisting mostly of oyster shells. The construction of the walls in lifts, measuring approximately 12 to 14 inches tall, is visible at many areas based on the patterns of consolidated shell aggregate, which tend to be located at the bottom of the lifts, as well as observed patterns of erosion. The wall thickness is approximately 9-1/4 inches (Figure 38).

The north portion of the barn was built with tabby brick, approximately 8-1/2 inches in length and 3 inches tall each, and the base of the wall consists of solid tabby concrete and measures approximately 10 inches tall (Figure 39). A coating has been applied over the tabby brick walls. The wall thickness at the north is approximately 7-1/2 inches (Figure 40).



Figure 37. The south section of the barn consists of solid tabby concrete poured in lifts.



Figure 38. The approximate wall thickness of the north section of the barn is 9-1/4 inches.



Figure 39. The north section of the barn consists of tabby brick.



Figure 40. The approximate wall thickness of the north section of the barn is 7-1/2 inches.

Wood-framed openings with gates are located on the east and west walls. On the south section of the barn, the framed openings measure approximately 9 feet 1-1/2 inches wide on the west facade and 7 feet 1 inch wide on the east facade (Figure 41). The east framed opening was partially infilled with tabby brick, approximately 2 feet 6 inches wide on the south end of the opening (Figure 42). The framed opening heights are generally 7 feet 9 inches tall.



Figure 41. View of opening on the south end of the west facade.



Figure 42. View of partially infilled framed opening on the south end of the east facade.

On the north section of the barn, the framed openings measure approximately 5 feet 8-1/2 inches wide on the west facade and 5 feet 8 inches wide on the east facade (Figure 43). The framed opening heights are generally 7 feet 6-1/2 inches tall. A vertical mortar joint is present north of the framed opening in the northern section of the barn, marking the boundaries of the original opening (Figure 44 and Figure 45).

The tabby sill at the framed openings on the north section of the barn is approximately 4-1/2 inches in height from the exterior and 11 inches in height from the interior, and the sill steps down 2-1/2 inches in the center (Figure 46 and Figure 47). The edges of the sill are recessed 3/4 inch to receive the wood frame (Figure 48).



Figure 43. View of the framed opening on the north end of the west facade.



Figure 44. Vertical mortar joint marking the boundary of the original opening on the west elevation.



Figure 45. Vertical mortar joint marking the boundary of the original opening on the west elevation.



Figure 46. Tabby sill at the interior of the framed opening.



Figure 47. Tabby sill at the framed opening.



Figure 48. The tabby sill is recessed at the edge of the framed opening.

One wood-framed window is located on the first floor of the north facade, and the remaining five windows are located at the attic level. A wooden plank shutter conceals the exterior face of the windows on the north and south elevation that are located within the attic (Figure 49). The windows are generally single-hung windows with an operable six-bottom sash and six-light upper sash with muntins (Figure 50). Based on archival images as well as the condition of the windows, they do not appear to be original, and are likely contemporary additions.



Figure 49. Wood shutter on the south facade.



Figure 50. Overall view of single-hung windows on east facade.

The window on the ground floor measures approximately 3 feet 2 inches wide and 3 feet 8-1/2 inches tall (Figure 51). The sill measures 3-1/2 inches tall and 9 inches in depth. The exterior casing trim is 3-1/2 inches in width, the interior casing trim is 1-1/2 inches in width and 2 inches in depth, and the sash stops are 1/2-inch in width (Figure 52). The rails measure 1-1/2 inches tall and the stiles measure 1 inch in width, and the muntins are 3/4-inch tall (Figure 53).



Figure 51. Overall view of single-hung window on north facade.



Figure 52. View of the window frame.



Figure 53. View of the rail at bottom of upper sash.

Interior

The interior of the Kingsley Plantation barn consists of tabby concrete walls and exposed wood structure at the underside of the floor and

roof. The roof and floor structure consists of timber framing. At the south section of the barn, the exterior joist ends are set into the tabby concrete walls and grouted with a repair mortar (Figure 54). The bearing ends of the wood joists are patched with a cementitious material. On the north section of the barn the wood joists are notched at the bearing ends to fit into the beams (Figure 55).

The flooring at the south end of the barn consists of wood planks while the north end flooring is sand (Figure 56 and Figure 57). The tabby foundation is visible on the north section of the barn (Figure 58). The wood flooring was installed by the National Park Service circa 2008–2009.



Figure 54. The exterior joist ends are set into the tabby concrete walls and grouted with a repair mortar.



Figure 55. The wood joists are notched at the bearing ends of the north section of the barn.



Figure 56. Flooring at the south section of the barn.



Figure 57. Flooring at the north section of the barn.



Figure 58. Visible tabby foundation on the north section of the barn (red arrow).

At the north section of the barn, the interior walls have a plaster layer over the tabby brick.

The attic space is accessed from the south end of the barn. Wood floor joists with wood planks span east to west and support the floor planks of the

attic space above. The joists are 3-5/8 inches wide, 11 inches tall, and spaced approximately 32 inches on center, and are typically notched along the east and west exterior walls (Figure 59).

The wood roof rafters supporting the roof at the north portion of the barn are spaced 30 to 32 inches on center and are 4 inches by 4 inches (Figure 60). A wood ridge board, approximately 1 inch thick, runs north to south along the length of the north portion of the barn, to which the rafters are toe nailed at their height. The height from the attic floor to the ridge member measures 10 feet and 10 inches. Two rows of wood collar ties are fastened to the roof rafters; the top member is located approximately 4 feet from the ridge height and the bottom member is fastened approximately 3 feet from the attic floor surface. The roof consists of wood shingles on the sloped roof, roof valley transition at the south roof, and wood lap siding at the north gable. An opening, measuring 36 inches wide by 60 inches tall, is centered at the north gable; the opening is secured with a wood panel door. A single opening with a wood panel door is similarly located at the center of the south facade at the ground level.



Figure 59. Floor joists supporting the attic floor above.



Figure 60. Attic at the north portion of the barn.

The attic space, or second level of the south portion of the barn, is open to the attic space of the north portion of the barn. The second-floor area at the south side of the barn is supported by wood joists running east–west, approximately 1-3/4 inches wide and 10 inches tall and spaced at 24 inches on center (Figure 61). At the east and west exterior walls, the exterior joists ends are set into the tabby concrete walls and grouted with a repair mortar. The floor joists bear on wood girders or the exterior tabby concrete walls. The girders are approximately 7 to 8 inches wide and 11 to 12 inches tall.



Figure 61. Floor joists supporting the attic floor above, at the south portion of the barn.

The walking surface of the second floor of the south portion of the barn is created by wood planks installed north-south over the joists viewed from the ground floor. The second floor is accessed via an opening at the southwest corner of the building.

The second level of the south portion of the barn has poured tabby concrete walls, which extend 5-1/2 feet above the floor surface at the east, west, and south exterior walls; the north wall opens to the attic at the north portion of the barn. The roofing rafters supporting the sloped, wood-shingle roof are spaced from 30 to 32 inches on center and measure 2 inches wide by 4 inches deep (Figure 62). Wood collar ties are fastened to the roof rafters approximately 3 feet below the ridge height and measure 3/4 inch wide by 8 inches tall. At the south exterior wall, the rafters bear on a wood plate attached to the top edge of the tabby concrete exterior wall. The north ends of the rafters bear on a wood-framed wall (Figure 63), equal in height to the tabby concrete along the east, west and south walls.

Four tie rod assemblies span across the width of the attic of the south portion of the barn, between the south tabby concrete exterior wall and the interior wood-framed wall, equally spaced along the length of the building (Figure 64). The north ends of the cables are anchored through steel angles installed along the wood-framed wall between the south portion of the barn and the section to the north.



Figure 62. Second floor of the south portion of the barn.



Figure 63. Opening between north and south portions of the barn.



Figure 64. Tie rod at the second floor of the south portion of the barn (red arrow).

The single-hung wood-frame windows accessible from the attic space appear to be replacement windows (Figure 65). The inside of each window opening measures approximately 2 feet 10 inches wide (excluding casing) and 4 feet 8 inches tall (Figure 66). At the window on the east attic wall, the sill measures 2 inches tall. The casing trim is 3-1/2 inches in width, and the frame is 1-1/2 inches in width. The sash rails measure 1 inch tall, and the muntin is 3/4-inch in width.



Figure 65. View of single-hung windows from the attic space.



Figure 66. Overall view of a single-hung window from the attic space.

Structural Analysis

As part of this study, a visual review of existing conditions was performed, and field measurements collected to review the structural conditions of selected representative components of the Kingsley Plantation barn. The purpose of the structural assessment is to provide the NPS with information regarding structural characteristics of Kingsley Plantation barn, in support of recommendations developed for this HSR and for reference by the park in planning continued use of the structure. The details of the analysis are included in Appendix C: Structural Analysis.

Methodology

At representative components of the structure, section strength was evaluated for minimum loadings and load combinations per the requirements of the current governing code, the 2023 Florida Building Code, which references the following standards: American Society of Civil Engineers *Minimum Design Loads for Buildings and Other Structures,* dated 2016 (ASCE 7-16); the American Wood Council *National Design Specification*, dated 2018 (NDS 2018), and American Concrete Institute *Building Code Requirements for Structural Concrete*, dated 2019 (ACI 318-19). Due to the limitations of the assessment, a global lateral load assessment of the barn was not completed. Representative components of the structure were individually checked for minimum design loads.

For the analysis of wood members, the roof rafters of the barn, with their associated geometry, were evaluated to determine the applied axial, flexural, and shear stresses due to the above loads.

Internal stress is the force acting on cross section of a member per unit inch due to external forces. Internal stresses due to bending of the member result in flexural stresses. Internal stress due to compression or tension of a member are axial stresses. Members that are inclined are subject to both flexural and axial stresses and must be studied simultaneously when assessing the member. External forces can be from gravity loads (self-weight and roof dead and live loads) or lateral loads (wind loads). So, in analyzing the adequacy of the member to resist a code-minimum applied external load, the internal stresses from the applied external forces are compared to the allowable internal stresses of the member (based on wood materials and other factors).

At a minimum, members should be able to resist their own self weight and applied dead load, which are constant external forces. Other external forces, such as live loads and wind loads, occur at discrete times. If the member is overstressed due to code-minimum live or wind load, it may not be overstressed constantly because those forces are not being applied to the member all the time. Also, the code-minimum external forces are conservative and reflect extreme load cases that do not occur in daily service.

The combined applied axial and flexural stresses were subsequently compared to maximum allowable stresses of the historic wood and a similar method was assessment with the shear stresses. This comparison is commonly referred to as the allowable limit or demand-to-capacity ratio (DCR). Typically, a DCR greater than 1.0 indicates that the calculated demand on a member exceeds the design capacity of the member, while a DCR equal to or less than 1.0 indicates that the demand on the individual frame members does not exceed the published allowable stresses of the individual members.

The design basic wind speed of 128 mph is taken from the current governing building code (2023 Florida Building Code, Existing Buildings, eighth edition) and corresponds to a 3-second gust speed at 33 feet above ground for Exposure Category D. As part of the wind load analysis, the basic wind speed is factored to accommodate for height, topographic, and exposure effects. With regards to other potential lateral loading, seismic demand is low at the site in comparison to wind and hence is not explicitly considered.

Findings

Analysis of Wood Members

The section strength at midspan of the roof rafters of the south portion and the north portion of the barn was evaluated for gravity and lateral loading.

A uniform dead and roof live load was applied in the gravity direction to the rafters. The wind loads are applied perpendicular to the span of the rafters. The analysis results demonstrated that at end rafters (within approximately 40 inches of the end of the building), the rafters in the south portion of the barn were overstressed in combined axial and flexure.

For load combinations where dead, roof live, and wind loads are applied simultaneously to the member, the DCR for combined flexural and axial stresses was 0.31 for the roof rafters at the north portion of the barn and 4.0 for the roof rafters at the south portion of the barn. The DCR for shear stresses was 0.1 for the roof rafters at the north portion of the barn and 0.6 for the roof rafters at the south portion of the barn.

Given the large flexural DCR of the south rafters for combined stresses, we evaluated the roof rafters for load combinations where dead and roof live loads are applied simultaneously, as well as the application of dead load only.

For load combinations where dead load only is applied to the member, without roof live or wind, the DCR for combined flexural and axial stresses was 0.2 for the roof rafters at the south portion of the barn.

For load combinations where dead and roof live loads are applied simultaneously to the member, without wind, the DCR for combined flexural and axial stresses was 0.5 for the roof rafters at the south portion of the barn.

Additional structural analysis was completed to determine the maximum wind speed in which the south rafters would not be overstressed for load combinations where dead, roof live, and wind loads are applied simultaneously to the member. The maximum wind speed that will not overstress the south roof rafters is 70 mph.

For conditions where wind speeds are 70 mph or less, all wooden members of the roof structure have adequate capacity to meet the load demand from gravity (dead and roof live) loads and lateral (wind) loads.

For a typical floor joist in the north and south portions of the barn, the applied flexural and shear stresses were compared to the code-permitted allowable stresses of the wood. The applied stresses of the floor joists were found to be well below the code-permitted allowable stresses. The DCR for flexural stresses was 0.4 for the roof rafters at the north portion of the barn and 0.3 for the roof rafters at the south portion of the barn. The DCR for shear stresses was 0.2 for the south portion roof rafters and 0.2 for the north portion roof rafters. The as-built construction of the floor joists is adequate to meet the gravity load demand, based on the assumptions outlined in Appendix C.

Analysis of Tabby Concrete

A two-story south wall vertical strip, 1 foot wide, at the southeast/southwest edge of the building was conservatively evaluated, as the height of the wall and loading from the south roof rafters result in higher stresses in the wall section at this location of the building (i.e., the governing load case for the walls). The wall section was evaluated for flexure, shear, and combined flexure and axial.

The applied loads on a 1-foot strip of wall consisted of the following: concentrated loads at the top of the wall from the roof rafters (resultants from the dead, live, and wind roof loads), concentrated loads at the second-level floor joists (resultants from the dead and live floor loads), and a distributed wind load on the wall.

The DCR for flexure alone was 0.4. For combined flexure and axial, the DCR was 0.1. For out-of-plane shear, the DCR was 0.1.

The as-built construction of the tabby concrete is adequate to meet the gravity and load demand, based on the assumptions outlined in Appendix C.

Conclusions

Most of the structural components of the barn that were analyzed for gravity and lateral loads, using conservative assumptions for material properties, adequately met the demand with an abundance of reserve capacity. The roof rafters in the south portion of the barn are the only structural components that are not adequate and are grossly overstressed under current-day design loads (with wind pressures from 128 mph winds). The structural analysis demonstrated that the south roof rafters have adequate capacity for gravity loading alone (dead and roof live), or a combination of gravity loading and lateral loading for wind speeds up to 70 mph.

Factors that contribute to the calculated overstress of the south roof rafters include the material assumptions, geometry of the roof, and the member size. The material property used in analysis is assumed to be southern pine. The allowable stresses for this species of wood published in NDS 2018 reflect downgraded numbers due to changes in the wood industry's growing and harvesting of this species. Historic wood species are often significantly denser and stronger than current day wood species. It is likely that the material properties of the original wood used to construct the Kingsley Plantation barn are stronger than the assumptions made in this study. This can only be confirmed if a wood sample is taken and the species of the wood is determined. The visual grading of the wood does not change; however, a different species of wood may yield higher allowable stresses that lower the calculated DCRs.

A factor that made a significant difference in the analysis of the roof rafters is the slope of the roof. The south roof rafters were documented to be at a shallower angle than the north roof rafter. The north roof of the barn is at an incline greater than 45 degrees from horizontal, which is considered a steep roof. In accordance with ASCE, steeper roofs, such as the north portion of the barn, experience lower uplift pressures. The south roof rafters develop high uplift roof pressures from wind forces, compared to the north roof rafters.

The member size of the south rafters also limits the capacity. The north rafters are twice the size of the south rafters. The 2x4 south rafters have a relatively long span and large spacing between members, which creates higher demand on the member.

Measures to strengthen the south rafters include the addition of wood members to decrease the spacing between roof rafters, increasing cross-sectional area of the rafters (built-up sections), shortening span length (added supports), shortening the unbraced length, or a combination thereof.

The tension rods spanning between the base of the south roof rafters are necessary to resist lateral loading at the base of the roof rafters. At the south end of the south roof, the tension rods frame into the top of the tabby concrete wall. At the north end of the south roof, the tension rods frame into a wood-framed stud wall. The failed tension rods should be repaired and further analysis should be

completed to determine adequate spacing and size of the tension rods.

The diagonal cracks over the framed openings throughout the barn suggests that the tabby concrete directly above the lintels is inadequately supported, causing deflection or bowing that creates the triangular-shaped cracks. Further investigation should be completed to determine the adequacy of the wood lintels above the openings to support the tabby concrete above.

Water staining was observed at isolated locations throughout the wood roof framing. Ensuring that the roof is free of water leaks will prolong the lifespan of the historic wood structure.

The sistered wood member to floor joist splice in north portion of barn did not appear to be an engineered design or repair due to the scattered pattern of the installed nails and relatively small sistered member sizes, compared to the original wood joist section. It appears that the purpose of the additional wood was to restore bearing at the end of the existing joist. This existing repair should be further analyzed for structural adequacy and supplemented if needed.

Laboratory Materials Studies

Petrographic studies were conducted on tabby concrete, mortar, and plaster samples removed by the project team from the Kingsley Plantation barn to characterize the materials and finishes. The samples represent historic tabby concrete and mortar, as well as repair material and an exterior coating sample. An overview of the studies is included in Appendix D: Materials Studies.

Methodology

Petrographic studies were conducted on seven selected samples in accordance with ASTM C856, *Standard Practice for Petrographic Examination of Hardened Concrete*. Each sample was examined visually, and detailed studies of the as-received surfaces were conducted at magnifications up to 40X using a stereomicroscope. Blue-dye epoxy-impregnated thin sections were prepared from portions of the seven selected samples to assess paste and aggregate constituents. Unprepared portions of each sample (i.e., in their as-received condition) and the prepared thin sections were examined as part of the studies to evaluate water absorbency and paste hardness. Thin sections were examined at magnifications ranging from 25X to 200X using a petrographic (polarized light) microscope.

The coating sample was analyzed using Fourier Transform Infrared Spectroscopy (FTIR). This technique is most useful for the identification of polymers and other organic components, although information about inorganic components can also be obtained. Infrared radiation supplies sufficient energy to produce vibrational motion in molecules. The output of the analysis is a plot showing peaks of absorbance at energies associated with vibrations of functional groups (that is, a defined combination of bonded atoms).

Findings

Laboratory studies revealed the differences between the seven samples examined as part of this study. (Refer to Appendix D for a detailed description of the individual samples examined and findings of the laboratory studies.)

Samples from the interior of the barn included two samples of a fully carbonated lime-based plaster, a sample of tabby concrete, and a sample of lime-based brick. Both plaster samples contained natural sand and crushed shell particles dispersed in lime paste. The interior tabby concrete sample contained aggregate composed of natural particles of quartz with a low volume of half-shell fragments and crushed shell fragments. The tabby brick sample is comprised of natural quartz sand and crushed shell fragments.

Exterior samples include shell fragments with no paste coating the particles from the tabby concrete wall which includes a white coating. The coating composition was analyzed using FTIR. The spectrum produced by the FTIR is consistent with a vinyl-acrylic copolymer, a type of acrylic that is used in manufacturing of acrylic paints.

Another tabby concrete sample from the exterior contained no shell fragments or large aggregates.

The sample also contained natural siliceous sand (quartz) dispersed in lime paste.

A sample of lime-based mortar from the exterior contained a natural, primarily siliceous sand dispersed in lime paste. The mortar contained abundant void space and shrinkage cracks that are typical of lime mortars. The majority of the sand represents a natural quartz, but a low volume of limestone is present.

Conclusions

The samples were compositionally similar, consisting of hydrated lime as the binder with quartz sand, and varying sizes of shell fragments depending on the sample type. The concrete and brick samples contained the largest shell fragments, and the plaster and mortar contained smaller portions of shells. An interior plaster sample contained a different binder composition than the other examined samples, with a slag-like component present with the hydrated lime.

All of the examined samples were fully carbonated and contained similar constituents, except for an interior plaster sample. The samples all exhibit binders made from hydrated lime, with varying proportions of filler that includes primarily oyster shells halves and fragments, and quartz sand. In addition to the hydrated lime present in each of the examined samples, an interior plaster sample contained a second cementitious component. The component appears glass-like, is isotropic under cross polarized light, and is dispersed throughout the paste and also present in nodules of cementitious material within the paste. Some of the slag-like particles appear similar in shape to historic American portland cements, with rounded particles surrounded by an iron phase; however, the optical characteristics of the slag-like particles are different than historic portland cements. The examined samples are all soft, exhibit high paste porosity, and quickly absorb water.

Condition Assessment

Exterior

- At the east facade, a large section of the tabby brick was previously repaired with parge coating and scored to resemble brick coursing (Figure 67 and Figure 68).
- Peeling coating was observed on the tabby brick walls located on the north section of the barn (Figure 69 and Figure 70).
- Vertical and step cracks were observed throughout the tabby brick walls. Some of the cracks had been previously infilled with a cementitious material (Figure 71). Step cracking was primarily observed along mortar joints (Figure 72).
- Non-continuous diagonal cracking in the tabby poured walls was present above existing framed openings (Figure 73).
- Cracked mortar joints and potentially loose tabby brick units were observed at areas where the coating has peeled (Figure 74).
- Cracked and spalled stone sills were observed at the framed openings throughout the barn (Figure 75 and Figure 76). The cementitious topping is often cracked as well (Figure 77).
- Bowed and warped wood shingles were observed at the roof ridge (Figure 78).
- Wide separation was present between the face of the tabby wall and the backside of the fascia board (Figure 79 and Figure 80).
- A split frieze board, likely from a previous repair, was observed on the north end of the east facade (Figure 81).
- Checked and split wood boards were observed at the gable end of the east facade, on the south portion of the building. Similarly, there are loose wood boards with underdriven nails (Figure 82 and Figure 83).
- Bird nests were observed at the eaves, particularly at corners (Figure 84).

- Impact damage from the wood gate latch has left indentations on the both the poured tabby walls and brick tabby walls (Figure 85 and Figure 86).
- Erosion of the walls was typically observed at the base of the wall (Figure 87). At the base of the east wall, there is an indentation on the face of the poured tabby wall (Figure 88).
- A significant amount of biological growth and soiling was observed throughout the tabby walls, especially concentrated at the roof valley and inside corners shaded from direct light (Figure 89 through Figure 93).



Figure 67. Locations of previous repairs on the east facade (red boxes).

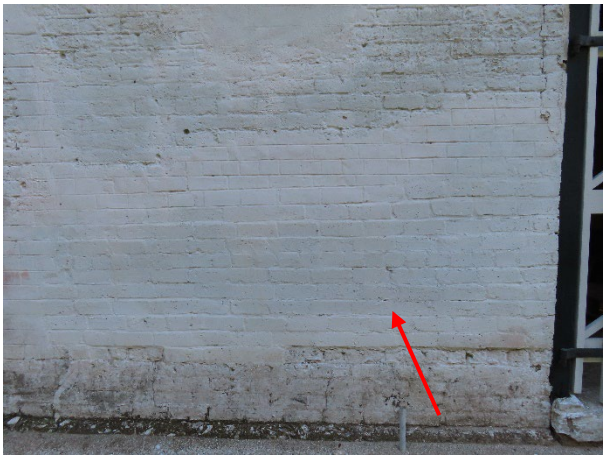


Figure 68. Parging scored to resemble brick coursing (red arrow).



Figure 69. Peeling coating on the tabby brick wall.



Figure 70. Peeling coating on the tabby brick wall.



Figure 71. Vertical step cracking infilled with a cementitious material on the north facade extending from the south of the window (red arrow).



Figure 72. Step cracking at the mortar joints on the north facade (red arrow).

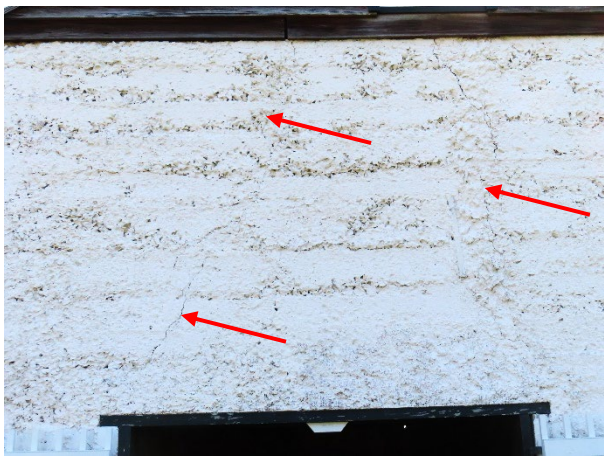


Figure 73. Non-continuous vertical cracking of the tabby poured walls on the west elevation (red arrows).



Figure 74. Cracked mortar joints and potentially loose tabby brick on the west facade above the framed opening.



Figure 75. Cracked stone sill at the north portion of the building.



Figure 76. Cracked concrete topping on the sill (red arrow).



Figure 77. Spalled stone sill at the east facade (southernmost section).



Figure 78. Warped wood shingles at the roof ridge.



Figure 79. Separation between the tabby wall and the eaves at the south facade.



Figure 80. Separation between the tabby wall and the eaves at the northwest corner.



Figure 83. Checks and splits at the wood boards (red arrows).



Figure 81. Previous repair to the frieze board of the east facade.



Figure 84. Bird nest within the eaves at corner on the north elevation of the building.

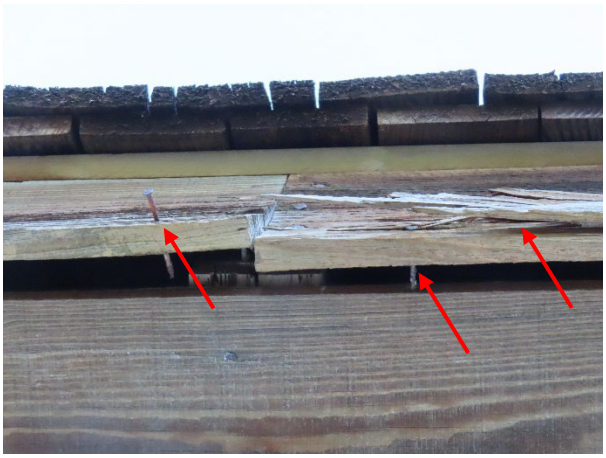


Figure 82. Checks, splits, and underdriven nails at the wood boards (red arrows).



Figure 85. Impact damage on tabby poured walls from latch.



Figure 86. Impact damage on tabby brick walls from latch.



Figure 87. Erosion at the base of the south wall.



Figure 88. Erosion at the base of the east wall.



Figure 89. Biological growth staining inside corner located on the east facade.



Figure 90. Biological growth staining at roof valley.



Figure 91. Biological growth staining at inside corner located on the east side of the building.



Figure 92. Biological growth staining at roof valley and corresponding inside corner located on the west side of the building.



Figure 93. Soiling and biological growth staining at the base of the wall.

Interior

- At the north section of the barn, a large section of the tabby brick was previously repaired with sundried lime-based brick units (Figure 94).
- Fired-clay brick was used to infill openings (Figure 95 and Figure 96). The mortar joints are eroded at many locations and the brick masonry exhibits cracking and isolated displacement.
- At the north section of the barn, there are missing sections of plaster over the tabby brick, particularly at previously infilled openings (Figure 97). Areas with delaminated plaster were also observed (Figure 98).
- Cracks were mainly concentrated at the edges of previously infilled or repaired sections (Figure 99).
- Non-continuous vertical cracks were observed at the corners of the tabby brick wall (Figure 100).
- Significant cracking of both the tabby brick and poured tabby walls was observed at the southeast-facing reentrant corner (Figure 101). The cracks extended from metal embedments in the wall (Figure 102).
- Cracking was observed extending from the pocketed joists on the south section of the barn (Figure 103).
- Considerable staining from biological growth was observed throughout the interior, particularly the south, north, and west walls (Figure 104 through Figure 106). Additionally, areas affected by water staining were observed on the wood joists and floorboards (Figure 107). Sections where plaster is missing also display staining from biological growth (Figure 108).
- Hole in the wood floorboards was observed on the north section of the barn near the west facade framed opening (Figure 109).
- At the attic of the north portion of the barn, an isolated area of section loss in the wood plank was observed at the east hip rafter between the north and south portions of the barn (Figure 110).
- A previous repair in the form of a sistered wood member was observed on a floor joist, near the north end of the structure (Figure 111). The end of the original joist was notched at approximately 4 inches from the bottom and 40 inches from the end. Two sistered members, measuring 1-3/8 inches by 7-3/4 inches, are on either side of the original joists extending from approximately the quarter point of the original joist to the east tabby concrete wall, and providing bearing for the member. Inconsistent spacing of fasteners between the sistered members and the joists was observed.

- One tension rod between the base of the roof rafter in the south portion of the barn has failed, as observed at the floor of the second level (Figure 112). The I-bolt anchor between the north end of the tension rod assembly and the wood-framed wall between the north and south portions of the barn appeared to have a pull-out failure.

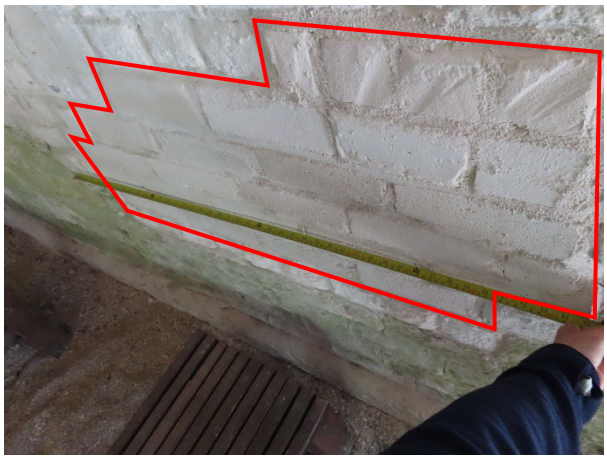


Figure 94. Area of sundried lime-based brick installed on the inside of the west-facing wall (red box).



Figure 95. Brick infill at east-facing wall of north section of the barn.



Figure 96. Brick infill at west-facing wall of the south section of the barn.



Figure 97. Missing section of plaster at the east-facing wall (red box).



Figure 98. Delaminated plaster at the east-facing wall.



Figure 99. Cracking along the perimeter of previously repaired areas at the west-facing wall (red arrow).



Figure 100. Non-continuous vertical cracks on the west-facing wall (red arrows).



Figure 101. Cracking at the tabby brick and poured tabby wall interface (red arrows).



Figure 102. Cracking extending from metal embedment.



Figure 103. Cracking extending from the pocketed joists on the west-facing wall (red arrows).



Figure 104. Biological growth staining observed around north-facing window.



Figure 105. Biological growth staining observed around north-facing window.



Figure 108. Biological growth staining on the north-facing wall.



Figure 106. Biological growth staining on the west-facing wall.



Figure 109. Hole in the wood floorboards (red arrows).



Figure 107. Water staining on the underside of the wood floorboards.



Figure 110. Section loss in the wood plank flooring at the attic of the north portion of the barn.



Figure 111. Sistered wood members at a floor joist on the north end of the barn.



Figure 112. Failed tension rod at the south end of the barn (red arrow).

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Significance and Integrity

National Register of Historic Places

The National Register of Historic Places is the official list of the nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[187]

The significance evaluation identifies the important historical associations of the property, and comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places. A property's significance is tied to a discrete period of time in which its important contributions were made and to relevant national, state, and local historic contexts.

Significance Criteria

In order for a property to be eligible for inclusion in the National Register of Historic Places, it must possess significance under one of four criteria. The Criteria for Evaluation for listing in the National Register of Historic Places state:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That has yielded, or may be likely to yield, information important in prehistory or history.[188]

In addition, the Criteria for Evaluation identify Criteria Considerations that address cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years that are not considered eligible for the National Register—but which will qualify for the National Register if they fall within certain categories. The Criteria Considerations do not pertain to this property, thus are not further discussed here.[189]

187. National Park Service, "National Register of Historic Places," accessed April 2024, https://www.nps.gov/subjects/nationalregister/index.htm.
188. *Code of Federal Regulations*, Title 36, Part 60, "The National Register Criteria for Evaluation."
189. National Park Service, "National Register of Historic Places."

National Register Significance Evaluation

Kingsley Plantation was listed in the National Register of Historic Places in 1970, based on documentation prepared by a representative of Kingsley Plantation State Park.[190] The nomination indicates that the 50-acre property is significant in the areas of Archeology (Prehistoric and Historic), Agriculture, Architecture, Commerce, Education, Industry, Military, and Politics/Government, during a period that spanned the sixteenth through the nineteenth centuries.[191]

In 2016, National Register Additional Documentation was prepared to provide additional documentation and expand on the information afforded in the 1970 nomination by considering more recent scholarship and the findings of several archeological investigations in the refinement of the areas of significance, features contributing to the significance of the property, and the period of significance.[192] It also reflects a boundary clarification from 50 to 51 acres. The nomination notes that the historic district is:

> . . . nationally significant under Criteria A, B, C, and D for its associations with early settlement within northeast Florida, antebellum plantation agriculture, postbellum farming adaptations to a new economy, and a twentieth-century transition to a tourism economy. For these associations, Kingsley Plantation is significant in the areas of Agriculture, Archeology (Historic, Non-Aboriginal), Architecture, Exploration/Settlement, Military History, and Recreation.[193]

One area of significance—archeology (prehistoric)—is not addressed by Additional Documentation based on the scope of work for that project. (Extensive archeological studies have been conducted at Kingsley Plantation, which could potentially serve as the basis for further Additional Documentation with respect to Criterion D.)

As noted in the 2016 National Register Additional Documentation, the Kingsley Plantation Historic District encompasses the oldest surviving plantation property in the state. Surviving historic resources contribute to the significance of the property by conveying its historic associations within three contexts—eighteenth- and nineteenth-century Florida settlement and antebellum Southern agricultural plantation development (1765–1865), the transition of the Florida coast from agricultural land uses to an emphasis on tourism (1865–1923), and early-twentieth-century recreational development along the Florida coast (1923–1955). These resources include the domestic plantation precinct site, which features the main house, kitchen house, barn, two wellheads, Cedar Avenue, Palmetto Avenue, and other road and walk traces; the sugar/grist mill archeological site; the slave cabin precinct site, which features twenty-five slave cabin ruins; the slave cemetery archeological site; and evidence of the Fort George Club, including the clubhouse and associated hedge plantings, L'Engle Avenue, and a pair of entry gateposts.

With reference to the barn that is the subject of this study, the 2016 National Register Additional Documentation notes:

> Although it has been altered several times since its original phases of construction, the barn possesses sufficient integrity to convey its historic associations and contributes to the significance of the Kingsley Plantation.[194]

Period of Significance

The National Register nomination for the Kingsley Plantation Historic District identifies a period of

190. Snodgrass, *National Register Nomination for Kingsley Plantation*.
191. Snodgrass, *National Register Nomination for Kingsley Plantation*.
192. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
193. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
194. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.

significance of 1791–1955. This period begins with acquisition of the property by John McQueen, and his subsequent construction of the extant main house, kitchen house, and original, south portion of the barn as part of a larger agricultural complex by 1798. It encompasses important additions made to the property by Zephaniah and Anna Kingsley, such as enlargements to the kitchen house, the north addition to the Kingsley Plantation barn circa 1814, and the addition of thirty-two slave cabins. The period of significance for the historic district ends with the acquisition of the property by the State of Florida for the establishment of a historic park, following its use as a private club and recreational community.[195]

A specific sub-period of significance for the Kingsley Plantation barn would extend from 1798, the likely earliest date of construction of the structure, to 1955, the date at which the property, including the barn, was acquired by the State of Florida. This period includes the addition made to the barn by Zephaniah Kingsley following its original construction.

Character-Defining Features

The historic nature of significant buildings and structures is defined by their character, which is embodied in their identifying physical features. Character-defining features can include the shape of a building; its materials, craftsmanship, interior spaces, and features; and the different components of its surroundings.[196]

The following list identifies existing character-defining features of the Kingsley Plantation barn:

- Orientation, configuration, and setting of the barn.
- General shape of the barn, including T-shape plan and gable roofs.
- Configuration of windows and door openings on the exterior of the barn.
- Interior configuration of the barn, including open plans.
- Materials, including tabby walls and plaster finish.
- Wood siding at gable ends and where original portion of the barn meets the addition.
- Exposed wood structural framing at the underside of the attic floor and roof.

Assessment of Integrity

Assessment of integrity is based on an evaluation of the existence and condition of the physical features which date to a property's period of significance, taking into consideration the degree to which the individual qualities of integrity are present. The seven aspects of integrity as defined in the National Register Criteria for Evaluation are location, design, setting, materials, workmanship, feeling, and association. As noted in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*:

> Location is the place where the historic property was constructed or the place where the historic event occurred. . . . Design is the combination of elements that create the form, plan, space, structure, and style of a property. . . . Setting is the physical environment of a historic property. . . . Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . . Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. . . . Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. . . . Association is the direct link

195. Slaton, Sargent, and Penich, *National Register Additional Documentation: Kingsley Plantation*.
196. Lee H. Nelson, FAIA, *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* (Washington, D.C.: National Park Service, Technical Preservation Services, 1988).

> between an important historic event or person and a historic property.[197]

The property must retain the essential physical features that enable it to convey its historical significance. The essential physical features are those features that define both why a property is significant (National Register criteria) and when it was significant (period of significance). The National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*, defines integrity as "the ability of a property to convey its significance."[198]

Integrity of Location. The barn retains integrity of location. The location of the structure has remained unchanged since original construction.

Integrity of Design. The barn retains integrity of design. Modifications, including the addition at the north side of the barn, were completed during the period of significance and are consistent with the original design of the barn.

Integrity of Setting. The barn retains integrity of setting despite addition of a nearby parking area to the south. The relationship between the structure and the surrounding site, including the rest of the domestic precinct, remains largely intact.

Integrity of Materials and Workmanship. The barn retains integrity of materials and workmanship, although slightly diminished by past repairs, including the replacement of the roof.

Integrity of Feeling. The barn retains integrity of feeling. The structure continues to convey its historic character and function, although currently used for interpretive purposes.

Integrity of Association. The barn retains integrity of association as part of Kingsley Plantation.

197. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: U.S. Department of the Interior, National Park Service, National Register, History and Education, 1990, rev. 1995), 44–45.
198. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*.

Treatment and Use

Requirements for Treatment and Use

The following discussion of treatment and use for the Kingsley Plantation barn has been prepared based on historical research, condition assessment, and discussion with the National Park Service. The barn is a contributing structure within the Kingsley Plantation National Historic Site and survives with sufficient integrity to convey its historic associations.

As such, treatment and use of the barn should be considered within the context of the legal mandates and policy directives established by the National Park Service Cultural Resources Management Guideline (Director's Order 28) for the protection of cultural resources. The barn is expected to continue to be preserved and interpreted.

Laws, Regulations, and Functional Requirements

Key laws, regulations, and functional requirements that apply to the recommended work include the following:

- National Park Service Cultural Resources Management Guideline (Director's Order 28), which requires planning for the protection of cultural resources on park property.
- Section 106 of the National Historic Preservation Act, which mandates that federal agencies, including the National Park Service, take into account the effects of their actions on properties listed or eligible for listing in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment.

Treatment of the building and site are also to be guided by the following:

- *The Secretary of Interior's Standards for the Treatment of Historic Properties*
- Architectural Barriers Act Accessibility Standards (ABAAS)
- International Building Code (IBC), 2024
- International Existing Building Code (IEBC), 2024
- NPS Guiding Principles of Sustainable Design

The State of Florida has adopted the 2023 Florida Building Code, seventh edition, which is based on the 2021 IBC and IEBC. The NPS is self-regulating in terms of enacting and enforcing building code standards. Timucuan Historic and Ecological Preserve is, therefore, not legally subject to local or state building code requirements. When undertaking repairs to buildings and structures, the NPS endeavors to have the work comply with model building code standards. At this time, the 2024 IBC is the model building code used by the NPS for design and construction. The NPS Denver Service Center also references the 2024 IEBC, with appendices and Resource A.

With historic structures, attempts to achieve strict conformance with model building code standards that are intended for new buildings can lead to destruction of the historic fabric. Alternative compliance procedures, such as Chapter 12 of the IEBC relating to historic buildings, should be referenced in determining code compliance. Alternatives to full prescriptive legislative and code compliance should be considered where such compliance would compromise the integrity of the structure.

The 2024 IEBC includes the following statements in Section 507, Historic Buildings:

> 507.1 Historic buildings. The provisions of this code that require improvements relative to a building's existing condition or, in the case of *repairs*, that require improvements relative to a building's predamage condition, shall not be mandatory for *historic buildings* unless specifically required by this section.
>
> 507.2 Life safety hazards. The provisions of this code shall apply to *historic buildings* judged by the *code official* to constitute a distinct life safety hazard.
>
> 507.3 Flood hazard areas. Within *flood hazard areas* established in accordance with Section 1612.3 of the *International Building Code*, or Section R306 of *the International Residential Code*, as applicable, where the work proposed constitutes *substantial improvement*, the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R306 of the International Residential Code, as applicable:
>
> Exception: *Historic buildings* meeting any of the following criteria need not be brought into compliance:
>
> 1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
>
> 2. Determined by the Secretary of the US Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
>
> 3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.
>
> 507.4 Structural. *Historic buildings* shall comply with the applicable structural provisions in this chapter.
>
> Exceptions:
>
> 1. The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.
>
> 2. Repair of *substantial structural damage* is not required to comply with Sections 405.2.3, and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.[199]

The IEBC exceptions noted above pertain to buildings within the Kingsley Plantation Historic District, including the Kingsley Plantation barn, as a property listed in the National Register.

In addition, the NPS provides guidance on sustainability in work on historic structures, in terms of energy efficiency, technology, and sustainable preservation in practice, as described in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*.[200]

Guiding documents include the park's General Management Plan (1996) and Foundation Document (2012).

Alternatives for Treatment and Use

The National Park Service has developed definitions for the four major treatments that may be applied to historic structures: preservation, rehabilitation, restoration, and reconstruction. The four definitions are as follows:

> **Preservation** is defined as the act or process of applying measures necessary to sustain the

199. International Code Council, Inc., *International Existing Building Code 2021* (Country Club Hills, Illinois: International Code Council, 2017).

200. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*.

existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. However, new exterior additions are not within the scope of this treatment. The Standards for Preservation require retention of the greatest amount of historic fabric along with the building's historic form.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. The Rehabilitation Standards acknowledge the need to alter or add to a historic building to meet continuing or new uses while retaining the building's historic character.

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project. The Restoration Standards allow for the depiction of a building at a particular time in its history by preserving materials, features, finishes, and spaces from its period of significance and removing those from other periods.

Reconstruction is defined as the act or process of depicting by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location. The Reconstruction Standards establish a limited framework for recreating a vanished or non-surviving building with new materials, primarily for interpretive purposes.[201]

Of the four treatment approaches, *Preservation,* which involves sustaining the building or structure in its existing form, is most appropriate for the Kingsley Plantation barn, given the significance and integrity of the structure. Preservation is to some extent in progress as a result of ongoing repair and cyclical maintenance implemented by the park. Alterations and repairs to the barn implemented by the NPS have retained historic features and materials.

Within the overarching preservation approach for the barn, this study recommends making the repairs necessary to stabilize and preserve the Kingsley Plantation barn in its existing state for continued interpretation by the park. Portions of the barn have been restored for interpretive purposes, and it will require ongoing repair and maintenance to retain it in its restored condition.

(Refer to the Developmental History and the Significance and Integrity chapters for further discussion of character-defining features.)

Future use of the Kingsley Plantation barn is anticipated to be similar to its current function as a historic structure interpreted for visitors.

Ultimate Treatment and Use: Standards and Guidelines for Treatment

The guidelines and requirements for treatment included later in this chapter have been defined based on the preservation objectives and requirements for treatment and use outlined above for the Kingsley Plantation barn. All treatment guidelines and recommendations were developed

201. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*.

in accordance with *The Secretary of the Interior's Standards for Preservation*. (*The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* were referenced in development of treatment guidelines and recommendations for landscape features addressed in this study.)

The Secretary of the Interior's Standards for Preservation are as follows:

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.

2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.[202]

Guidelines for implementing the treatment recommendations provided herein are as follows:

- Undertake all work on the structure in compliance with *The Secretary of the Interior's Standards for Preservation*.
- Retain the character of the historic structure and environs by protecting the barn and surrounding site.
- Protect adjacent natural resources during construction activities. Any active bird nests should not be moved as part of any work. Additionally, work should be avoided during maternity and pup season for threatened and endangered bat species (May 1 through July 15). If work must occur during this period, a bat emergence survey should be conducted by a qualified biologist prior to the start of any work.
- Document through detailed as-built drawings, photographs, and written narrative all changes and treatments to the structures and its immediate site. Maintain records of treatments and preserve documentation according to professional archival standards.

202. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. The guidelines that accompany the Standards also note that new materials should be distinguishable from old.

Maintain a copy of records in the NPS archives.

- Retain features and materials at both the exterior and interior of the barn that survive from the period of significance to the greatest extent possible.
- Incorporate sustainable design principles in all future projects that respect the preservation principles listed above.

Recommendations

The following specific recommendations for treatment of the Kingsley Plantation barn respond to the overarching treatment approach of *preservation*.

Site

- Maintain the site around barn so that it is free of trees and heavy ground vegetation.
- Install an apron with coquina stone around the perimeter of the barn to facilitate drainage away from the structure. Tamp down stone after installation. Monitor the apron for erosion and washout.

  The coquina stone apron could resemble the "ghost structure" footprints installed at the footprint of the nearby tabby slave cabins (Figure 41). The footprint consists of thin black metal edging, placed in the ground about 2 inches and projecting above ground about 2 inches, with crushed coquina placed inside of the edging.[203]
- Consult the Cultural Landscape Report for Kingsley Plantation for guidance in vegetation management around the barn.



Figure 113. "Ghost structure" footprints at the west cabins, March 2023. (Source: TIMU)

General

- Occupancy in the structure is to be limited to periods with wind gusts of 70 mph or less. This is based on the completed structural analysis of the south roof rafters. (Refer to the Existing Conditions chapter and Appendix D of this HSR for additional information about the analysis.) Additional recommendations regarding the wood rafters are found in the wood recommendations section below.

Tabby Concrete

The tabby concrete walls of the cabins should be preserved with repairs performed as needed to address conditions that may contribute to or accelerate deterioration, using repair techniques and procedures that include the following steps:

203. Correspondence with park personnel, December 2022; project compliance documentation, including Categorical Exclusion Documentation Form, Project: Install Footprint Buildings at Kingsley Plantation, PEPC Project Number 109718, signed by Superintendent Chris Hughes, September 19, 2022, with attachments.

- Cracks in the tabby concrete and tabby brick should be repaired. Repairs should include cleaning and installation of a compatible repair material such as a natural hydraulic lime (NHL) repair mortar with oyster shells as aggregate. (Fine or hairline cracking of the tabby does not require repair.)

- Any previous failed patch materials should be removed. Any fragments of original material should be retained for archival purposes.

- The existing vinyl-acrylic copolymer coating should be removed from the exterior walls. The existing coating is debonding/peeling from the tabby surface at some locations. Coating removal trials should be performed to determine the gentlest, most effective method for coating removal. Available methods include water, chemical, and microabrasive techniques. Based on prior experience with coating removal from similar substrates, chemical paint removers are most likely to be effective in removing the existing coating without damaging the substrate, although other techniques such as low pressure (less than 200 psi, or lower depending on trials) water or microabrasive (75 psi or less) methods could be evaluated in trials. A range of proprietary chemical coating removal products are available; only systems that do not present a hazard to workers, animals, or the environment and that will not damage the substrate should be used. During trials, collection of paint debris and containment of run-off should be evaluated. Cleaning systems that include a paper or fabric mask to be applied over the cleaning product, which helps with dwell of the cleaner as well as with collection of cleaning and paint debris, should be considered. Removal of the existing coating and cleaning/biocide treatment should be completed before the limewash is applied.

- As a cyclical maintenance task to address organic growth when present, the tabby concrete should be cleaned with a biocide/mild detergent at affected areas. Mock-ups of cleaning systems should be performed to evaluate systems to be used and determine a procedure that will not damage or impact the highly exposed shell aggregate. In addition to any cleaning systems used by NPS on tabby structures within Timucuan, proprietary mild detergent/biocide systems should be evaluated in trials. An example of a proprietary system that can be evaluated in trials is D2 Biological Solution, a quaternary ammonium chloride cleaner that has successfully been used on historic structures to remove biological growth; this type of product also slows recurrence of biological growth, although cyclical applications (e.g., annually or every few years) are typically required.

- Following removal of existing coating, a limewash coating should be applied to the tabby concrete walls. Based on repair treatments previously developed by the NPS for tabby concrete at the slave cabins at Kingsley Plantation, the existing limewash on those structures consists of mixture of NHL 2 or 3.5, sand, and water. NHL 2 is recommended for this application, as it is softer and slower setting than NHL 3.5. Prior to repairs, trials using a similar mix design should be performed to evaluate the application procedure and appearance. Trial repairs and mock-ups should be performed to determine the exact lime plaster and limewash mix designs and application techniques. Adjustments to the mix design, variations to the application technique, and multiple samples may be required. Initial small samples should be prepared in unobtrusive locations on the structure, followed by larger mock-ups of selected repair mixes and techniques. The mock-ups should also evaluate means of protecting adjacent site areas and collecting runoff or overflow material during application.

- Samples of original material, where removed during repair and preservation work, should be retained by the NPS as archival records.

Stone

- Remove any loose cracked or spalled stone pieces from the stone sills at openings. If

remaining stone presents a tripping hazard, consideration should be given to repairing stone units. Where stone repair is considered, dutchman units can be installed that replace a portion of the original unit with compatible stone material, cut square and installed to re-create the original profile.

- Remove cracked cementitious topcoat previously applied to stone sills at the framed openings. Perform trial parge coat removal in selected areas to evaluate the effectiveness of removal and confirm best practices to avoid damage to the substrate stone. Inspect the condition of the stone units following parge coat removal to understand condition. Stone units with smooth spalls or erosion may not require repair. For units where the remaining stone is irregular or unstable following parge coating removal, consider implementing dutchman repairs as discussed above.

Wood

- Based on the structural analysis, the south roof rafters should be strengthened. Measures to strengthen the south rafters include the addition of wood members to decrease the spacing between roof rafters, increasing cross sectional area of the rafters (built-up sections), shortening span length (added supports), shortening the unbraced length, or a combination thereof. This work should be undertaken as part of the planned roof replacement project.

- The failed tension rods should be repaired, and further analysis should be completed to determine adequate spacing and size of the tension rods.

- Further investigation should be completed to determine the adequacy of the wood lintels above the framed openings in the tabby concrete.

- Further structural analysis is recommended to determine the adequacy of the north floor joist splice.

- Split and deteriorated wood should be removed and replaced with new cedar or cypress clapboard. Prior to installation, the wood clapboards should be treated with a penetrating clear water repellant on all surfaces. Since there is no sheathing, consideration should be given to installing a bead of joint sealant at the interior face of lap joints between clapboards (where exposed to view on the interior) to reduce the potential for water infiltration.

- Based on discussion with the park, we understand that replacement of the roof is planned in the coming years. The new roof should be Western red cedar or Alaskan yellow cedar, as recommended by the NPS Historic Preservation Training Center (HPTC). Design of roofing should also be coordinated with the park's *Structural Fire Management Plan* (2019).[204]

- The wood shingles at the roof should be cleaned periodically, with a biocide/detergent at affected areas to remove organic growth. The frequency of cleaning required will be determined by conditions observed during regular monitoring. Cleaning mock-ups should be performed to evaluate cleaning systems to be used and determine a procedure that will not damage the wood.

- Bird nests at the roof eaves should be removed. Nests should be removed by hand, and in compliance with the Migratory Bird Treaty Act. Do not remove active bird nests (most likely active in spring).

- For roof or wood repairs, avoid work during threatened and endangered listed bat species maternity/pup season (May 1-July 15). If work

204. *Timucuan Ecological and Historic Preserve, Structural Fire Management Plan.* August 26, 2019 (unsigned copy).

needs to occur during this window, a bat emergence survey should be conducted by a qualified biologist a few days before work is scheduled.

Resilience to Natural Hazards

Natural hazards to which Timucuan Ecological and Historic Preserve is vulnerable include rising sea-level change, wave erosion, and flooding. For example, relative sea-level trends at Mayport, Florida, near the mouth of the St. Johns River, indicate an increase of 0.91 foot per 100 years, based on monthly mean sea-level data from 1928 to 2020.[205] Sea levels in the vicinity of Timucuan Ecological and Historic Preserve are projected to rise as much as 0.70 meters (2.3 feet) by the end of the twenty-first century.[206]

Climate variability is anticipated to bring increasingly frequent strong storms and heavy rainfall to many areas, including the southeastern United States. As noted in a 2013 study by the South Carolina Department of Natural Resources: ". . . the increase in intense storm events causing greater water inputs in shorter periods of time, affecting flood frequency and duration" is a result of climate variability.[207] Coastal Florida is similarly affected by severe storms. One of the most significant recent weather events occurred on September 10, 2017, when Hurricane Irma made landfall at Cudjoe Key in Florida as a Category 4 storm and moved across south Florida and up the west coast of the state. Although the hurricane did not make landfall near the preserve, onshore winds with gusts to 60 mph at Jacksonville—together with torrential rains—led to extensive flooding in the area. The storm surge led to record flooding of the St. Johns River.[208] Timucuan Ecological and Historic Preserve closed in advance of the storm and sustained damage to the boat dock at Kingsley Plantation.

In response to natural hazards, Timucuan Ecological and Historic Preserve conducted a Facility Management Environmental Hazard Assessment, Adaptation and Resilience Planning workshop in April 2021, with support from Western Carolina University and the University of Rhode Island.[209] Four remote workshop sessions were held by the University of Rhode Island team, working with park leadership, to identify and begin planning discussions for resilience actions for priority vulnerable resources. Discussions addressed the Facilities Management Hazard Mitigation and Resilience Toolkit, developed by

205. NOAA, "Tides and Currents," Relative Sea Level Trend: 8720218 Mayport, Florida, accessed March 2024, https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8720218; University of Florida, Florida Sea Grant College Program, "Sea-Level Rise in Florida–the Faces and Science," July 2013, accessed March 2024, https://downloads.regulations.gov/FWS-R4-ES-2024-0050-0002/attachment_20.pdf.

206. Maria A. Caffrey, Rebecca L. Beavers, and Cat Hawkins Hoffman, *Sea Level Rise and Storm Surge Projections for the National Park Service, Natural Resource Report Series NPS/NRSS/NRR—2018/1648* (Fort Collins, Colorado: U.S. Department of the Interior, National Park Service, Natural Resources Stewardship and Science, May 2018). The study is the first to analyze information from the United Nations Intergovernmental Panel on Climate Change (IPCC) and National Oceanic and Atmospheric Administration (NOAA) models. This research is the first to analyze IPCC and NOAA projections of sea level and storm surge under climate change for U.S. national parks.

207. Bob Perry, compiler and editor, *Climate Change Impacts to Natural Resources in South Carolina* (Columbia: South Carolina Department of Natural Resources, 2013), 16, accessed March 2024, https://www.dnr.sc.gov/pubs/CCINatResReport.pdf.

208. "Irma Brings Record Flooding to Jacksonville," September 11, 2017, accessed March 2024, https://www.wunderground.com/cat6/irma-brings-record-flooding-jacksonville-cuts-power-more-5-million.

209. National Park Service, Park Facility Management Division, with Western Carolina University and the University of Rhode Island, *Timucuan Ecological and Historic Preserve Facility Management Environmental Hazard Assessment, Adaptation and Resilience Planning Summary Report*, April 2021 (PowerPoint).

the NPS Park Facility Management Division to assist park facility managers and staff in integrating hazard mitigation and adaptation to emerging trends in the severity of weather into facility planning and operation.[210] The toolkit provides a step-by-step process to assess hazard drivers, impacts, and vulnerabilities, and identify and evaluate resilience options and potential adaptation strategies for infrastructure, cultural resources, and stormwater management. The workshops addressed the key steps in the toolkit:

- Step 1. Define the adaptation planning scope and information needs.
- Step 2. Assess hazard drivers, impacts, and vulnerabilities.
- Step 3. Review management goals and refine as needed.
- Step 4. Identify potential adaptation strategies and actions for impacted facilities.
- Step 5. Evaluate, select, and implement potential adaptation strategies and actions for impacted facilities.
- Step 6. Track effectiveness and conditions.

Kingsley Plantation and the Fort Caroline Exhibit were selected as assets at Timucuan Ecological and Historic Preserve that scored high in a preliminary vulnerability assessment conducted with Western Carolina University, and they were selected for a resilience planning exercise. Although Kingsley Plantation was noted to have high exposure to sea-level rise, storm surge, and erosion, and a high risk of flood damage, this risk is lower at the barn due to its location away from the shoreline. General overarching adaptation strategies were discussed, including approaches to maintain, protect, redesign, or rebuild and reconstruct resources.[211] A range of potential specific adaptation strategies were identified for resources at Kingsley Plantation, including the seawall, main house, carpenter's shop (maintenance shed), and Fort George Road/Palmetto Avenue. Exploration of additional resilience strategies was recommended for the boat dock and pier and the group shop. As a less vulnerable structure, the barn is not specifically addressed in the discussion of adaptation strategies.[212]

Because loss of historic resource integrity may occur as a result of the impacts of severe storms, documentation and analysis of change over time using data collection are anticipated to be an important part of the response to mitigating anticipated loss or diminishment. Data collected through documentation can also be used as a tool to plan for the impacts associated with emerging trends in the severity of weather. This Historic Structure Report, including the historical narrative, condition assessment, and recommendations, together with photographs and

210. National Park Service, Park Facility Management Division, with Western Carolina University and the University of Rhode Island, *Timucuan Ecological and Historic Preserve Facility Management Environmental Hazard Assessment, Adaptation and Resilience Planning Summary Report*.

211. National Park Service, Park Facility Management Division, with Western Carolina University and the University of Rhode Island, *Timucuan Ecological and Historic Preserve Facility Management Environmental Hazard Assessment, Adaptation and Resilience Planning Summary Report*. The first three adaptation strategies allow the resource to remain in the same place with maintenance or design to mitigate vulnerabilities. The fourth strategy, rebuild and reconstruct, involves relocating the resource to a less vulnerable location. Interestingly, archeological research suggests that more than 2,000 years ago, inhabitants of coastal Florida resettled inland after rising seas flooded an older settlement. Stephanie Livingston, "High tides: Florida's early climate-change resettlements could guide modern sea level rise planning," *Florida Museum Research News*, accessed April 12, 2022, https://www.floridamuseum.ufl.edu/science/high-tides-floridas-early-climate-change-resettlements-could-guide-modern-sea-level-rise-planning/.

212. Ibid.

measured drawings, is an example of the type of documentation that is relevant to this purpose. The park, with the National Center for Preservation Technology and Training, recently completed a three-dimensional scanning project for resources at Kingsley Plantation as a way to record the site and its structures.[213] Monitoring of weather-related deterioration will also support an understanding of what additional protection and repairs may be needed in response to ongoing and specific weather events.

Climate variability poses challenges and potential disruptions that are now beginning to be understood and anticipated. It will be necessary to consider and imagine a wide spectrum of possible responses to the threat, which may need to be implemented concurrently and nimbly, with the ability to refine and update regularly as conditions change. Historic cultural responses used by coastal communities to combat flooding, and ecological processes within wetland environments, coupled with appropriate application of emerging technology, should all be considered in devising responses to the challenge of protecting significant cultural resources.

Efforts conducted for Timucuan Ecological and Historic Preserve will benefit from coordination with other planning and documentation projects to address effects of natural hazards under consideration or in the process of being implemented by the NPS. Future severe weather events, rising sea levels, and other impacts should be anticipated and considered in planning for protection and maintenance of the site and its resources.

213. Sreya Chakraborty, Research Associate (former), Jason Church, Isabella Jones, Ina Sthapit, National Center for Preservation Technology and Training, National Park Service, "Slave and Tenant Farmer Cabin Documentation: A case for laser scanning endangered historic structures and landscapes," Association for Preservation Technology International annual conference (presentation), October 2021.

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Appendix A: Historic American Buildings Survey Drawings

National Park Service. Historic American Buildings Survey documentation, Kingsley Plantation, Timucuan Ecological and Historic Preserve, Jacksonville, Duval County, Florida, HABS FL-478. Jack E. Boucher, photographer, drawn by Paul A. Davidson, 2003.

National Park Service. Historic American Buildings Survey documentation, Kingsley Plantation, Barn, Timucuan Ecological and Historic Preserve, Jacksonville, Duval County, Florida, HABS FL-478-D. Drawn by Paul A. Davidson, 2005.

KINGSLEY PLANTATION



SITE PLAN

1"=50' 1:600

0 50 100 150
FEET 1"=50'-0"

0 5 10 20 30 40 50
METERS 1:600

N

NOTE: TOPOGRAPHIC LINES ARE DERIVED FROM DRAWINGS PRODUCED BY THE JAEGER COMPANY

INHABITED BY TIMUCUA INDIANS FOR THOUSANDS OF YEARS, FORT GEORGE ISLAND, AS PART OF FLORIDA, WAS CLAIMED BY PONCE DE LEON FOR SPAIN IN 1513. A MISSION, SAN JUAN DEL PUERTO, WAS ESTABLISHED ON THE ISLAND BY JESUIT PRIESTS IN 1587, GIVING THE ISLAND ITS ORIGINAL NAME, SAN JUAN. THE MISSION WAS DESTROYED IN 1702 BY A BRITISH RAID DURING THE WAR OF THE SPANISH SUCCESSION. IN 1733, JAMES OGLETHORPE, SAILING SOUTH FROM SAVANNAH, RENAMED THE ISLAND AFTER ST. GEORGE, AND ESTABLISHED A FORT, FORT ST. GEORGE, EITHER ON THE ISLAND OR IN ITS VICINITY. WITHIN FIVE YEARS, HOWEVER, THE FORT HAD BEEN ABANDONED, ALTHOUGH THE ISLAND RETAINED ITS NEW NAME.

FLORIDA WAS CEDED TO GREAT BRITAIN AT THE END OF THE SEVEN YEAR'S WAR IN 1763, AND THE NEW ROYAL GOVERNOR, JAMES GRANT, ENCOURAGED SETTLEMENT AND THE ESTABLISHMENT OF PLANTATIONS. IN 1765, FORT GEORGE ISLAND WAS SURVEYED TO RICHARD HAZARD SR., WHO ESTABLISHED AN INDIGO PLANTATION. BY 1783 THE ISLAND HAD BEEN ACQUIRED BY PATRICK TONYN, THE SECOND ROYAL GOVERNOR. IN THAT YEAR, HOWEVER, AS PART OF THE TREATY OF PARIS ENDING THE AMERICAN REVOLUTION, FLORIDA WAS CEDED BACK TO SPAIN.

IN 1790, THE SPANISH INSTITUTED A LAND GRANT SYSTEM FOR FLORIDA, INCLUDING GRANTS TO FOREIGNERS WILLING TO SWEAR ALLEGIANCE TO SPAIN AND MAKE IMPROVEMENTS ON THEIR LAND. THE PLANTATION KNOWN TODAY AS KINGSLEY PLANTATION WAS SURVEYED IN 1792 TO THE PLANTER JOHN McQUEEN (1751-1807), WHO HAD FLED TO FLORIDA FROM GEORGIA IN 1791 WITH 300 SLAVES TO AVOID CREDITORS. McQUEEN WAS BAPTIZED CATHOLIC, CHANGING HIS NAME TO DON JUAN REYNA, AND BY 1793 HAD CONSTRUCTED A HOUSE ON FORT GEORGE ISLAND. THIS FIRST HOUSE WAS DESTROYED BY FIRE THE FOLLOWING YEAR, AND BY 1798 McQUEEN HAD BUILT A NEW AND MORE COMMODIOUS HOUSE, WITH ADJACENT KITCHEN, AT THE NORTH END OF THE ISLAND. ALTHOUGH McQUEEN'S COTTON PLANTATION ON FORT GEORGE ISLAND THRIVED AT FIRST, BY 1804, DUE TO POOR WEATHER AND BAD MANAGEMENT, HE FOUND HIMSELF DEEPLY IN DEBT AGAIN, AND WAS FORCED TO PUT THE PLANTATION UP FOR SALE.

THE PROPERTY WAS PURCHASED BY THE GEORGIA PLANTER JOHN HOUSTOUN McINTOSH (1773-1836), WHO BROUGHT 200 SLAVES TO FORT GEORGE ISLAND TO GROW SEA ISLAND COTTON. IN 1811, McINTOSH BECAME INVOLVED IN THE PATRIOTS' REBELLION, AN EFFORT BY AMERICAN SETTLERS TO SEIZE THE COLONY OF FLORIDA FROM THE SPANISH FOR ANNEXATION BY THE UNITED STATES. ALTHOUGH THE REVOLT WAS INITIALLY SUCCESSFUL, THE UNITED STATES GOVERNMENT DISAVOWED THE ACTION, AND McINTOSH WAS FORCED TO FLEE TO GEORGIA. UNABLE TO RETURN TO FLORIDA, HE RENTED HIS PLANTATION ON FORT GEORGE ISLAND TO ZEPHANIAH KINGSLEY IN 1814, AND SUBSEQUENTLY SOLD IT TO HIM IN 1817.

KINGSLEY (1765-1843) HAD MADE HIS FORTUNE AS A SLAVE TRADER, AND WAS ALSO ENGAGED IN SHIPBUILDING, AS WELL AS IMPORTING AND EXPORTING TRADE GOODS. HE HAD PURCHASED HIS FIRST FLORIDA PLANTATION IN 1803, AND WOULD EVENTUALLY OWN MORE THAN 32,000 ACRES IN THE COLONY. KINGSLEY PLANTATION BECAME HIS HOME PLANTATION, WHERE HE GREW SEA ISLAND COTTON, SUGAR CANE, AND PROVISIONS. KINGSLEY SET ABOUT RESTORING THE HOUSE BUILT BY McQUEEN, WHICH HAD BEEN RANSACKED DURING THE PATRIOTS' REBELLION. OVER THE COURSE OF THE NEXT DECADE HE REBUILT THE KITCHEN (WHERE HE INSTALLED ONE OF HIS AFRICAN-BORN WIVES, ANNA MADAGEGINE JAI, AND THEIR CHILDREN), BUILT THE TABBY BARN, AND BUILT THE 32 TABBY SLAVE HOUSES. IN 1819, FLORIDA WAS CEDED TO THE UNITED STATES BY SPAIN. DESPITE KINGSLEY'S PUBLIC ADVOCACY OF RIGHTS FOR FREE BLACKS, A SERIES OF RESTRICTIVE RACIAL LAWS WERE IMPOSED BY THE TERRITORY, RAISING CONCERN BY KINGSLEY FOR THE FUTURE OF HIS MIXED-RACE FAMILY. IN 1836, HE PURCHASED A PLANTATION IN HAITI, MOVING HIS WIVES, CHILDREN, AND SOME OF HIS SLAVES THERE, AND IN 1839 HE SOLD FORT GEORGE ISLAND TO TWO OF HIS NEPHEWS.

KINGLSEY PLANTATION WENT THROUGH A SERIES OF OWNERS DURING THE NEXT THREE DECADES, SOME OF THEM ABSENTEE, WHEN THE HOUSE WAS PRESUMABLY EMPTY. IN 1869, FORT GEORGE ISLAND WAS PURCHASED BY NEW HAMPSHIRE NATIVE JOHN ROLLINS (1835-1905). AT THE TIME, THE ONLY RESIDENTS OF THE PLANTATION WERE NINE FAMILIES OF FREEDPEOPLE LIVING IN THE FORMER SLAVE QUARTERS. ROLLINS AND HIS WIFE MOVED INTO THE PLANTATION HOUSE, AND SUBSEQUENTLY UNDERTOOK A NUMBER OF SIGNIFICANT ALTERATIONS TO THE PLANTATION BUILDINGS. SUBSTANTIAL CHANGES WERE MADE TO THE HOUSE, A COVERED WALKWAY WAS ERECTED BETWEEN THE HOUSE AND THE KITCHEN, A NEW PORCH WAS BUILT ON THE KITCHEN, AND SEVERAL OF THE SLAVE QUARTERS WERE DEMOLISHED SO THAT ROLLINS COULD BUILD A DOCK AND BOATHOUSE WITH THE TABBY SLABS.

ONCE ESTABLISHED ON FORT GEORGE ISLAND, ROLLINS PLANTED 100 ACRES OF ORANGE TREES. WHILE WAITING FOR THE GROVES TO MATURE, HE BEGAN RECREATIONAL DEVELOPMENT OF THE ISLAND. LOTS AT THE SOUTHERN END OF THE ISLAND WERE SURVEYED AND SOLD, BEGINNING IN 1873, AND IN 1875 A HOTEL, THE FORT GEORGE HOTEL, WAS BUILT ON THE EASTERN SHORE OF THE ISLAND. DIFFICULT ECONOMIC TIMES AND THE ISLAND'S RELATIVE ISOLATION HINDERED THESE EFFORTS, AND IN 1888 THE HOTEL BURNED DOWN. ALTHOUGH ROLLINS'S ORANGE GROVES WERE SUCCESSFUL FOR A NUMBER OF YEARS, SEVERE FREEZES DURING THE WINTER OF 1894-95 KILLED MOST OF THE TREES, EFFECTIVELY ENDING AGRICULTRUAL PRODUCTION ON FORT GEORGE ISLAND.

IN 1923, 208 ACRES OF FORT GEORGE ISLAND WERE PURCHASED FROM THE ROLLINS HEIRS BY THE FORT GEORGE CORPORATION, WHICH THEN LEASED 58 ACRES, INCLUDING THE KINGSLEY PLANTATION BUILDINGS, TO THE ARMY AND NAVY COUNTRY CLUB OF FLORIDA. RENAMED THE FORT GEORGE CLUB IN 1926, THE CLUB BUILT A NEW CLUBHOUSE IN 1927 ADJACENT TO THE PLANTATION HOUSE, WHICH WAS USED AS AN ANNEX FOR ADDITIONAL ACCOMMODATIONS. THE CLUBHOUSE BURNED IN 1936, BUT WAS REBUILT IN 1939, WITH THE PLANTATION HOUSE SERVING AS THE CLUBHOUSE IN THE INTERIM. BY THEN, HOWEVER, THE CLUB HAD GONE INTO DECLINE, DUE TO AN AGING MEMBERSHIP AND TO FINANCIAL DIFFICULTIES BROUGHT ABOUT BY THE DEPRESSION. IN 1948, THE CLUB CEASED OPERATIONS AND PUT ITS REAL ESTATE ON THE MARKET. IN 1955, THE CLUBHOUSE AND ADJACENT AREA, INCLUDING THE PLANTATION HOUSE, THE KITCHEN, AND THE BARN, WERE PURCHASED BY THE STATE OF FLORIDA FOR USE AS A STATE PARK. THE PARK WAS EXPANDED IN 1966 TO INCLUDE THE SLAVE QUARTERS. IN 1970, KINGSLEY PLANTATION WAS PLACED ON THE NATIONAL REGISTER OF HISTORIC PLACES. IN 1991, JURISDICTION FOR THE SITE WAS TRANSFERRED TO THE NATIONAL PARK SERVICE, AS PART OF TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE.

THE DOCUMENTATION OF KINGSLEY PLANTATION WAS UNDERTAKEN BY THE HISTORIC AMERICAN BUILDINGS SURVEY (HABS) OF THE HERITAGE DOCUMENTATION PROGRAMS DIVISION OF THE NATIONAL PARK SERVICE (NPS), RICHARD O'CONNOR, ACTING MANAGER. THE PROJECT WAS SPONSORED BY TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE (TIMU), NPS, BARBARA GOODMAN, SUPERINTENDENT. PROJECT PLANNING WAS COORDINATED BY JOHN ROBBINS, CHIEF, HABS; AND BY AMY HITE, SUPERVISORY EXHIBITS SPECIALIST, TIMU. THE FIELD WORK WAS UNDERTAKEN AND THE MEASURED DRAWINGS WERE PRODUCED BY PROJECT SUPERVISOR MARK SCHARA, HABS ARCHITECT; BY HABS ARCHITECT PAUL A. DAVIDSON; AND BY ARCHITECT GREGOIRE HOLEYMAN (UNIVERSITY OF CALIFORNIA AT BERKELEY). THE LARGE-FORMAT PHOTOGRAPHY WAS UNDERTAKEN BY HABS PHOTOGRAPHER JACK E. BOUCHER. ASSISTANCE WAS PROVIDED BY THE TIMU FACILITIES MAINTENANCE STAFF.

HISTORIC AMERICAN BUILDINGS SURVEY
FL-478

SHEET 1 OF 5 SHEETS

KINGSLEY PLANTATION
TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE 11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA

DRAWN BY: PAUL A. DAVIDSON

KINGSLEY PLANTATION DOCUMENTATION PROJECT, 2003-05
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

FORT GEORGE RIVER

MAINTENANCE BUILDINGS

CAR SHED

FORT GEORGE CLUBHOUSE
(NATIONAL PARK SERVICE OFFICES)

HOUSE
HABS No. FL-478-B

FLAGPOLE BASE

WELL

KITCHEN
(ANNA MADAGEGINE JAI HOUSE)
HABS No. FL-15-1
HABS No. FL-478-C

BARN
HABS No. FL-478-D

GARDEN

GATEPOSTS

PARKING LOT

LUTZ
HOUSE

WELL
HOUSE

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME
JS	*JUNIPERUS SILICICOLA*	SOUTHERN RED CEDAR
MG	*MAGNOLIA GRANDIFLORA*	SOUTHERN MAGNOLIA
QV	*QUERCUS VIRGINIANA*	LIVE OAK
SP	*SABAL PALMETTO*	SABAL PALM

SITE PLAN

1"=20' 1:240

0 25 50
FEET 1"=20'-0"

0 5 10 15
METERS 1:240

N

KINGSLEY PLANTATION

TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE 11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA

DRAWN BY: PAUL A. DAVIDSON

KINGSLEY PLANTATION DOCUMENTATION PROJECT, 2003-05
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

HISTORIC AMERICAN BUILDINGS SURVEY FL-478

SHEET 2 OF 5 SHEETS

DETAILS OF DRAWING SHEET NUMBER

IF REPRODUCED, PLEASE CREDIT THE HISTORIC AMERICAN BUILDINGS SURVEY, NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR, WASHINGTON, D.C.

KINGSLEY PLANTATION

11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA

TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE

HISTORIC AMERICAN BUILDINGS SURVEY FL-478

SHEET 3 OF 5 SHEETS

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DRAWN BY: PAUL A. DAVIDSON
KINGSLEY PLANTATION DOCUMENTATION PROJECT, 2003-05
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

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E4
E3
E2
E1
SP
QV
JS
SLAVE QUARTERS
HABS No. FL-15-1
HABS No. FL-478-A
GATE
BEATTY AVENUE
PALMETTO AVENUE

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME
JS	*JUNIPERUS SILICICOLA*	SOUTHERN RED CEDAR
QV	*QUERCUS VIRGINIANA*	LIVE OAK
SP	*SABAL PALMETTO*	SABAL PALM

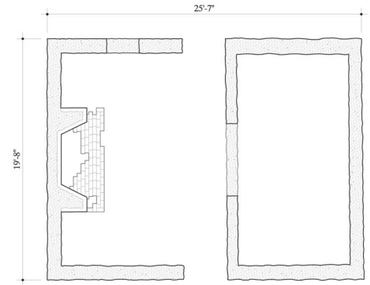
SITE PLAN

1"=20' 1:240

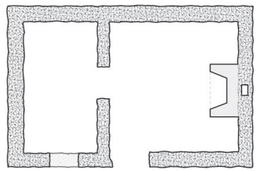
0 25 50 FEET 1"=20'-0"

0 5 10 15 METERS 1:240

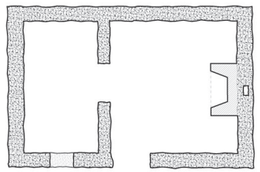
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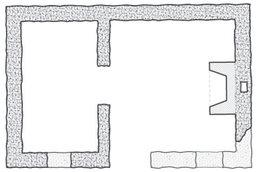
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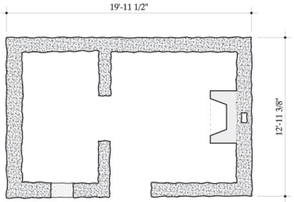
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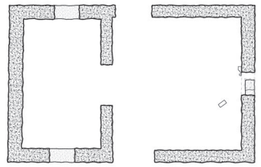
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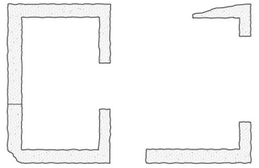
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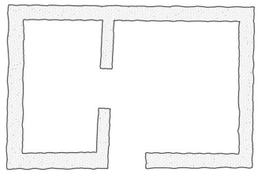
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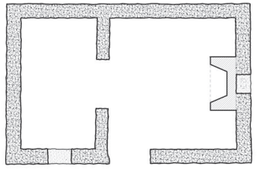
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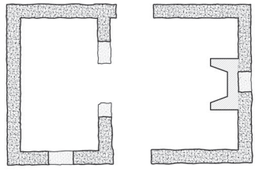
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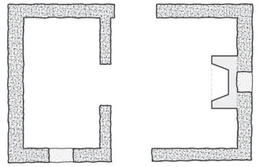
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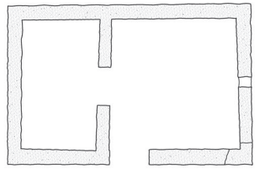
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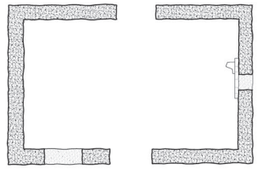
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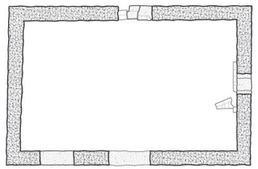
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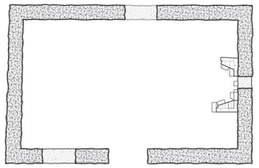
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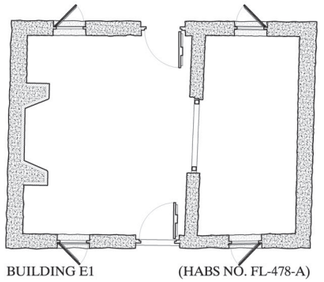
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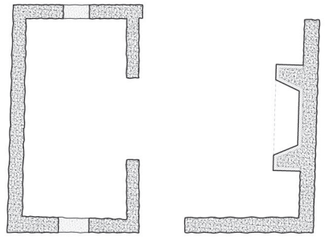
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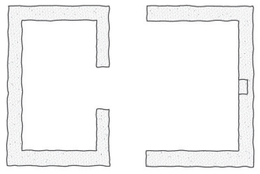
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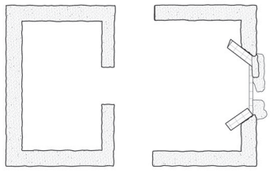
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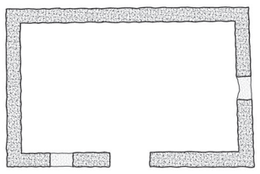
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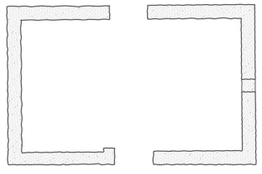
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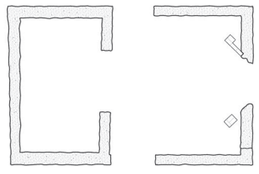
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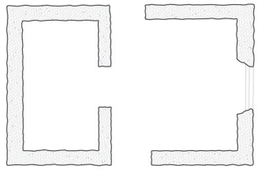
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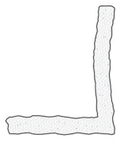
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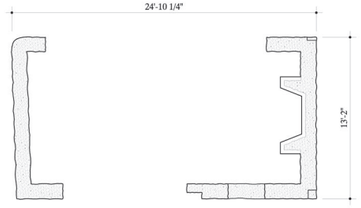
BUILDING W6



BUILDING W7



BUILDING W15



BUILDING W16

PLANS OF SLAVE QUARTERS

1/4"=1'-0" 1:48





NOTE: INDIVIDUAL PLANS ARE ORIENTED SO THAT THE WALL FACING THE CENTER OF THE ARC FACES DOWN ON THE SHEET

DRAWN BY: PAUL A. DAVIDSON

KINGSLEY PLANTATION DOCUMENTATION PROJECT, 2003
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

KINGSLEY PLANTATION

TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE 11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA

SHEET 3 OF 9 SHEETS

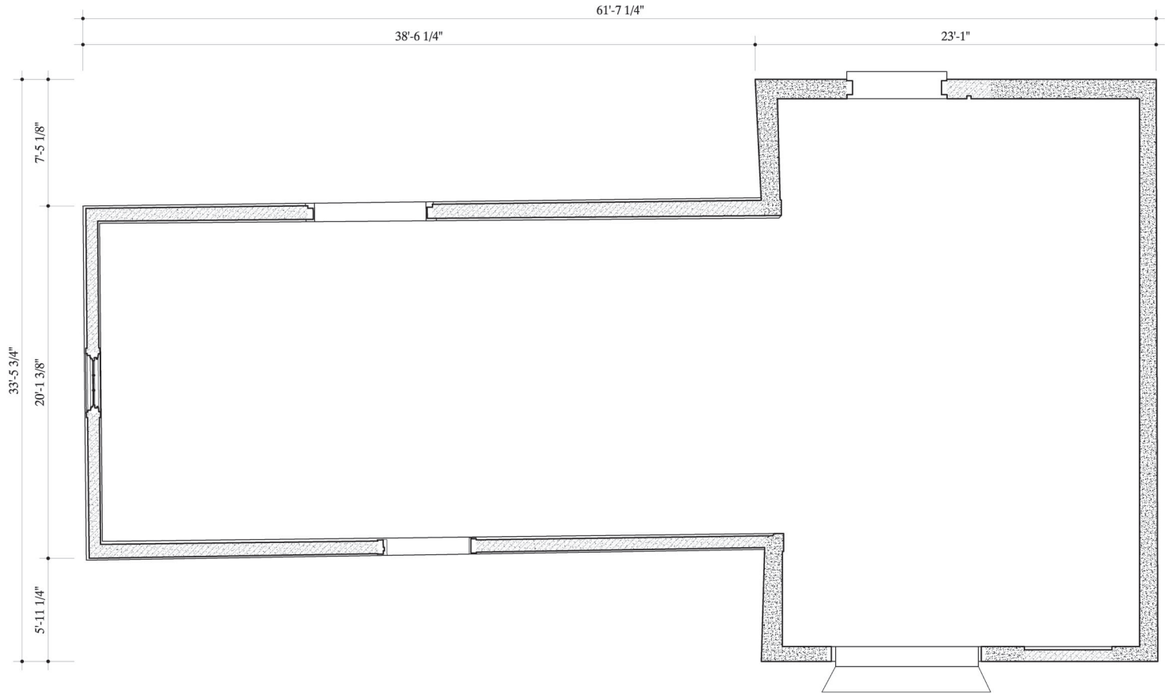
HISTORIC AMERICAN BUILDINGS SURVEY FL-478

ZERO-KEY OF A DRAWING INDEX NUMBER

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BARN

KINGSLEY PLANTATION



PLAN

1/4"=1'-0" 1:48

0 1 2 3 4 5 10 15
FEET 1/4"=1'-0"

0 1 2 3 4 5
METERS 1:48

N

T-SHAPED IN PLAN, THE BARN AT KINGSLEY PLANTATION WAS ERECTED IN TWO PHASES. THE NORTH WING, CONSTRUCTED OF TABBY BRICK, WAS MOST LIKELY BUILT CIRCA 1814-20, EARLY DURING ZEPHANIAH KINGSLEY'S TENURE AT THE PLANTATION. THE SOUTH WING, CONSTRUCTED OF POURED TABBY, WAS BUILT AT AN UNKNOWN LATER DATE, ALTHOUGH POSSIBLY BY 1822. WOOD FRAMING SUPPORTS THE ROOF. THE BARN AT KINGSLEY PLANTATION IS THE ONLY SURVIVING BARN FROM FLORIDA'S COLONIAL PERIOD.

THE DOCUMENTATION OF KINGSLEY PLANTATION WAS UNDERTAKEN BY THE HISTORIC AMERICAN BUILDINGS SURVEY (HABS) OF THE HERITAGE DOCUMENTATION PROGRAMS DIVISION OF THE NATIONAL PARK SERVICE (NPS), RICHARD O'CONNOR, ACTING MANAGER. THE PROJECT WAS SPONSORED BY TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE (TIMU), NPS, BARBARA GOODMAN, SUPERINTENDENT. PROJECT PLANNING WAS COORDINATED BY JOHN ROBBINS, CHIEF, HABS; AND BY AMY HITE, SUPERVISORY EXHIBITS SPECIALIST, TIMU. THE FIELD WORK WAS UNDERTAKEN AND THE MEASURED DRAWINGS WERE PRODUCED BY PROJECT SUPERVISOR MARK SCHARA, HABS ARCHITECT; BY HABS ARCHITECT PAUL A. DAVIDSON; AND BY ARCHITECT GREGOIRE HOLEYMAN (UNIVERSITY OF CALIFORNIA AT BERKELEY). THE LARGE-FORMAT PHOTOGRAPHY WAS UNDERTAKEN BY HABS PHOTOGRAPHER JACK E. BOUCHER. ASSISTANCE WAS PROVIDED BY THE TIMU FACILITIES MAINTENANCE STAFF.

DRAWN BY: PAUL A. DAVIDSON

KINGSLEY PLANTATION PROJECT, 2005
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

KINGSLEY PLANTATION · BARN
11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA
TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE

SURVEY NO. FL-478-D

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 1 OF 2 SHEETS

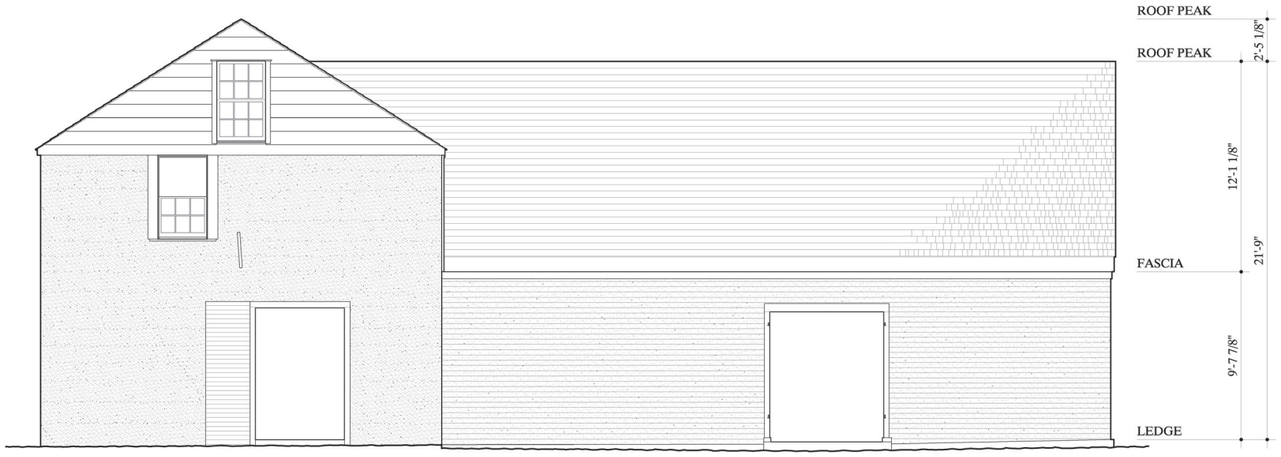
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SOUTH ELEVATION

1/4"=1'-0" 1:48



EAST ELEVATION

1/4"=1'-0" 1:48

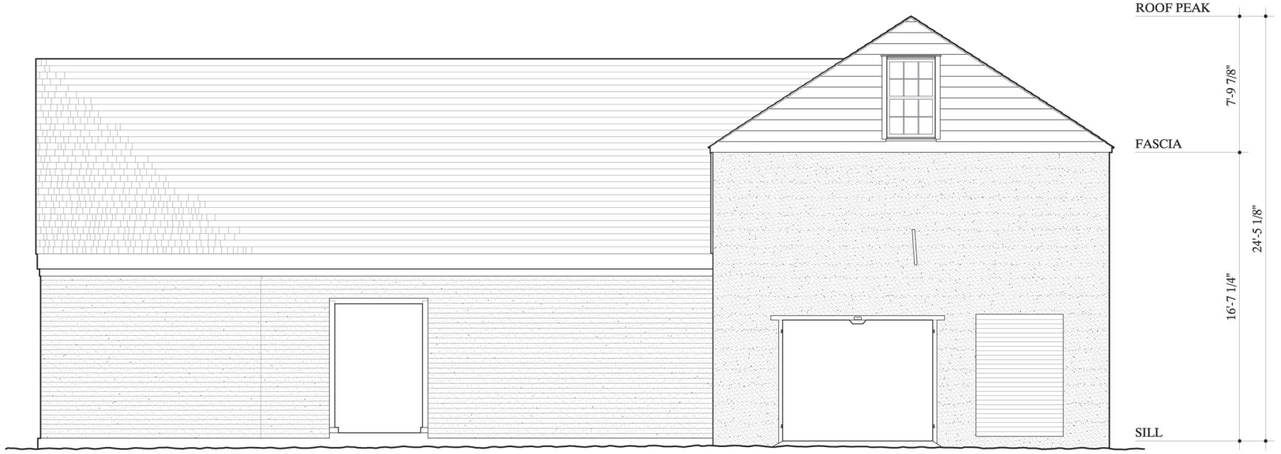


NORTH ELEVATION

1/4"=1'-0" 1:48

0 1 2 3 4 5 10 15

FEET 1/4"=1'-0"



WEST ELEVATION

1/4"=1'-0" 1:48

0 1 2 3 4 5

METERS 1:48

DRAWN BY: PAUL A. DAVIDSON \ GREGOIRE HOLEYMAN

KINGSLEY PLANTATION PROJECT, 2005
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

KINGSLEY PLANTATION · BARN

TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE 11676 PALMETTO AVENUE JACKSONVILLE DUVAL COUNTY FLORIDA

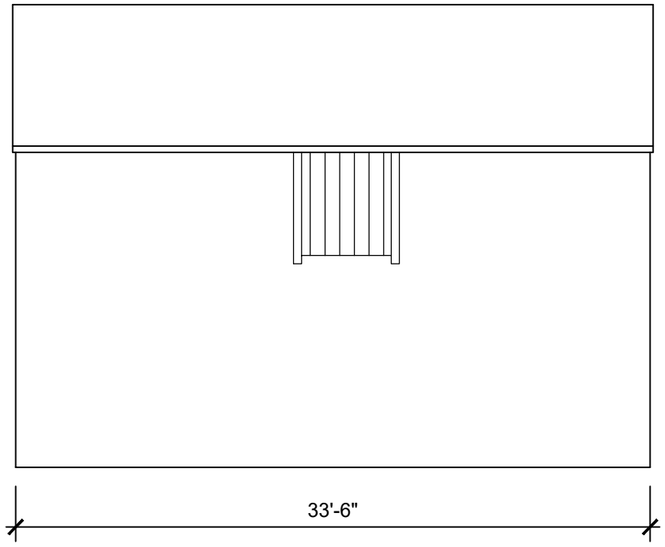
SURVEY NO. FL-478-D

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 2 OF 2 SHEETS

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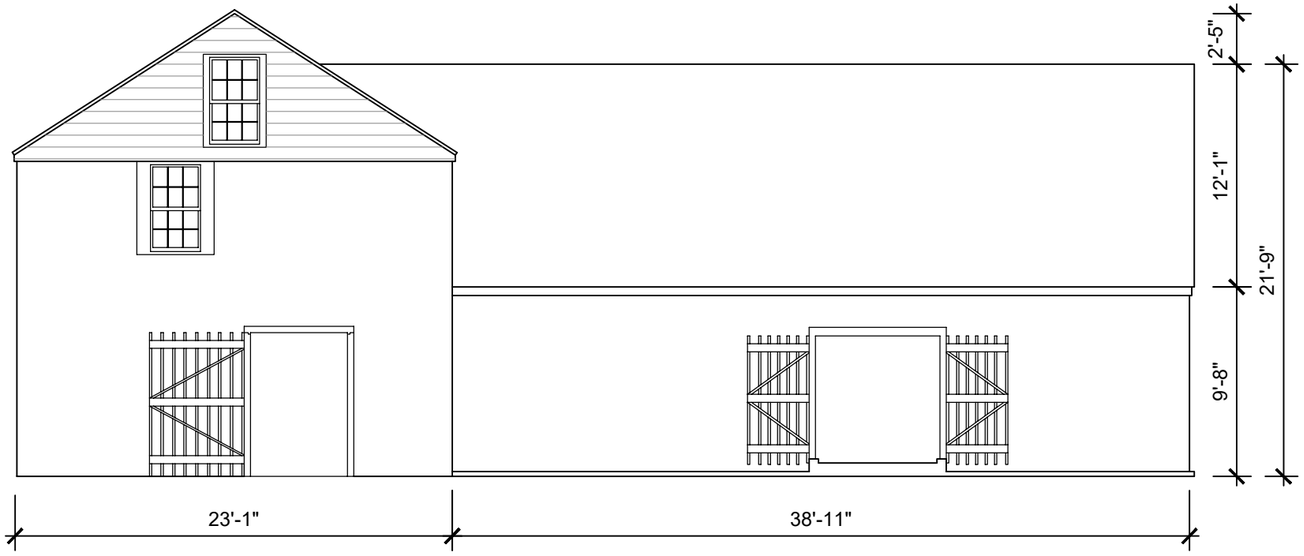
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Appendix B: Measured Drawings



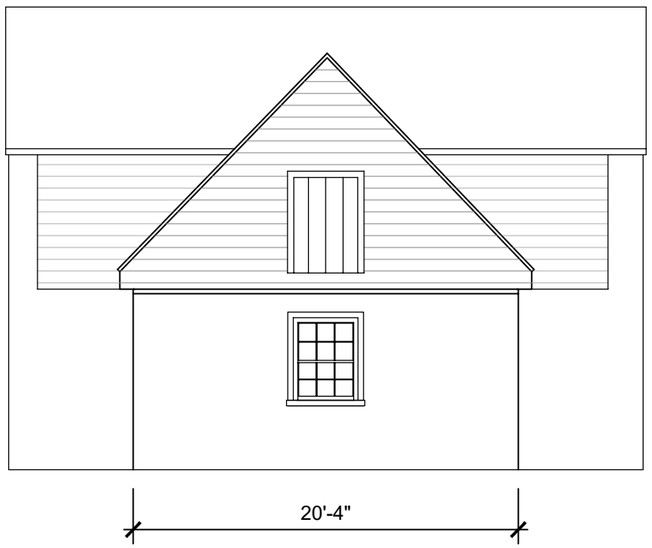
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Scale: 1/8" = 1'-0"



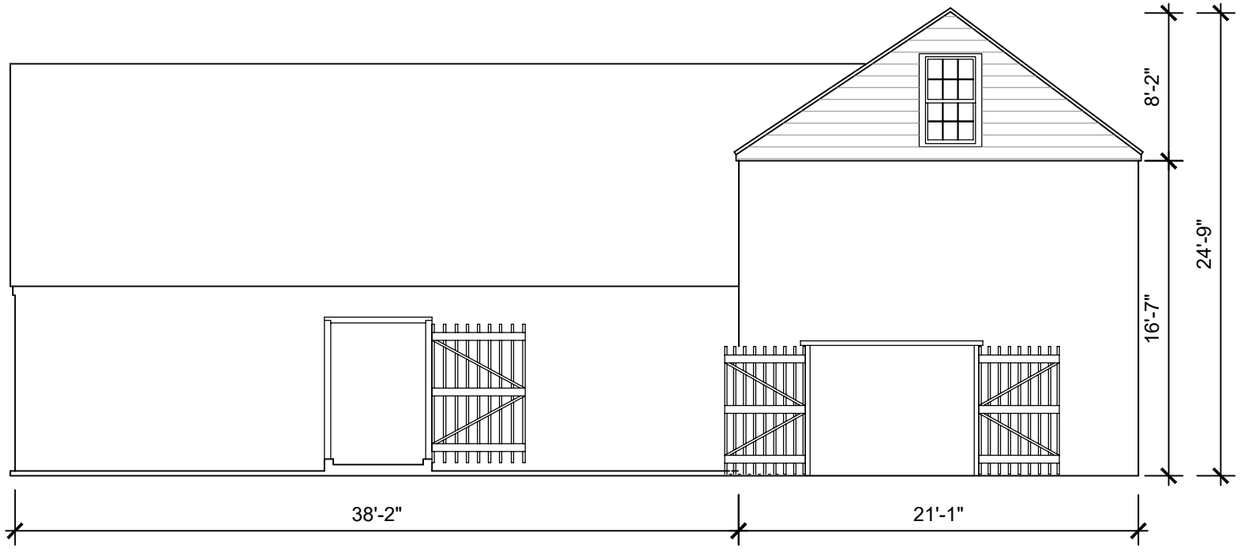
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Scale: 1/8" = 1'-0"



3 North Elevation

Scale: 1/8" = 1'-0"



4 West Elevation

Scale: 1/8" = 1'-0"

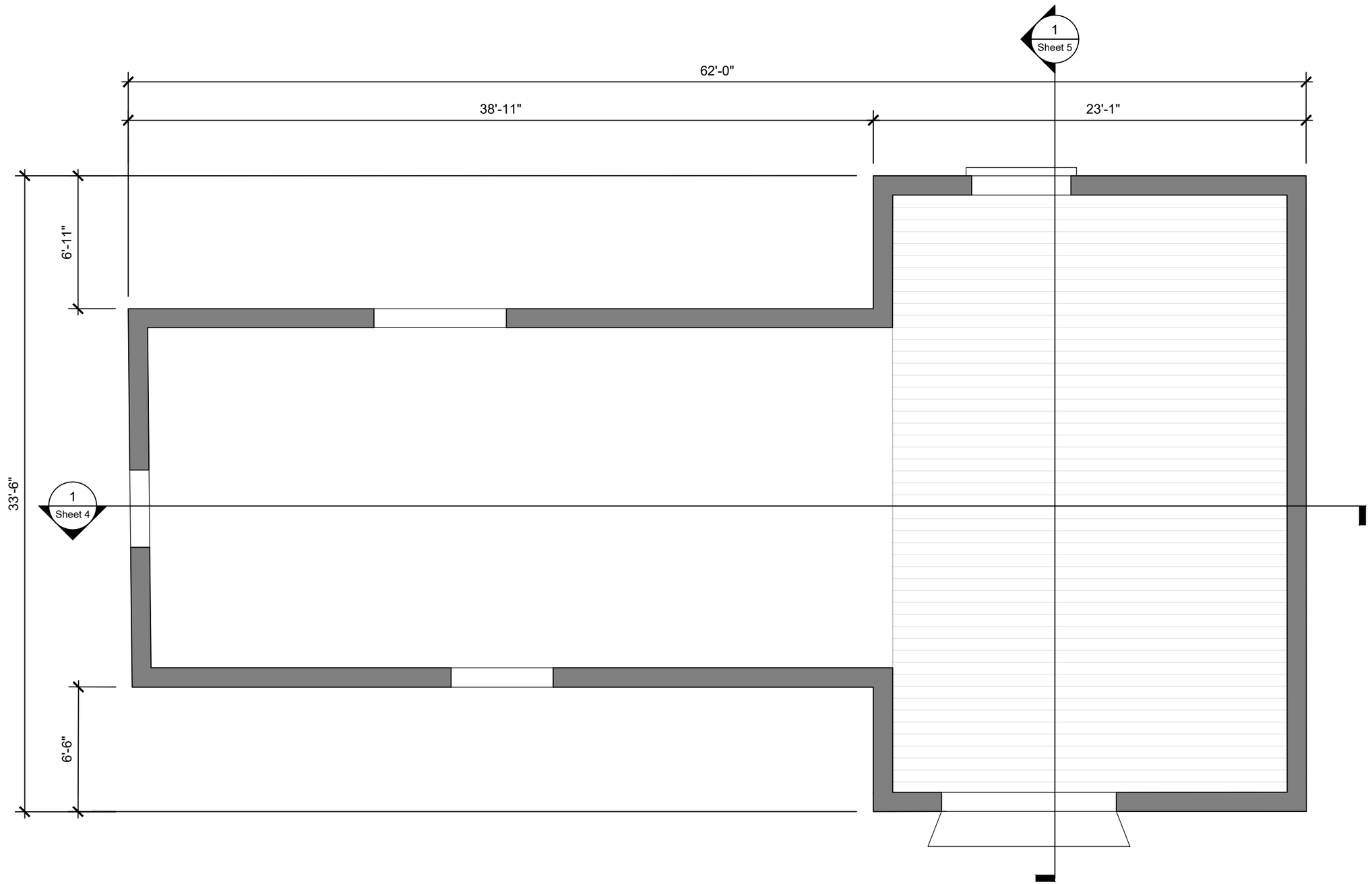
DR- N BY: WISS, J-NNEY, ELSTNER -SSOCI-TES, INC., -UGUST 2024

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U.S. DEP-RTMENT OF THE INTERIOR
SOUTHE-ST REGION-L OFFICE

KINGSLEY PLANTATION BARN
TIMUCU-N ECOLOGIC-L -ND HISTORIC PRESERVE
J-CKSONVILLE, FLORID-

HISTORIC STRUCTURE REPORT

SHEET 1 OF 5



1 Floor Plan

Scale: 3/16" = 1'-0"

N

SHEET 2 OF 5

HISTORIC STRUCTURE REPORT

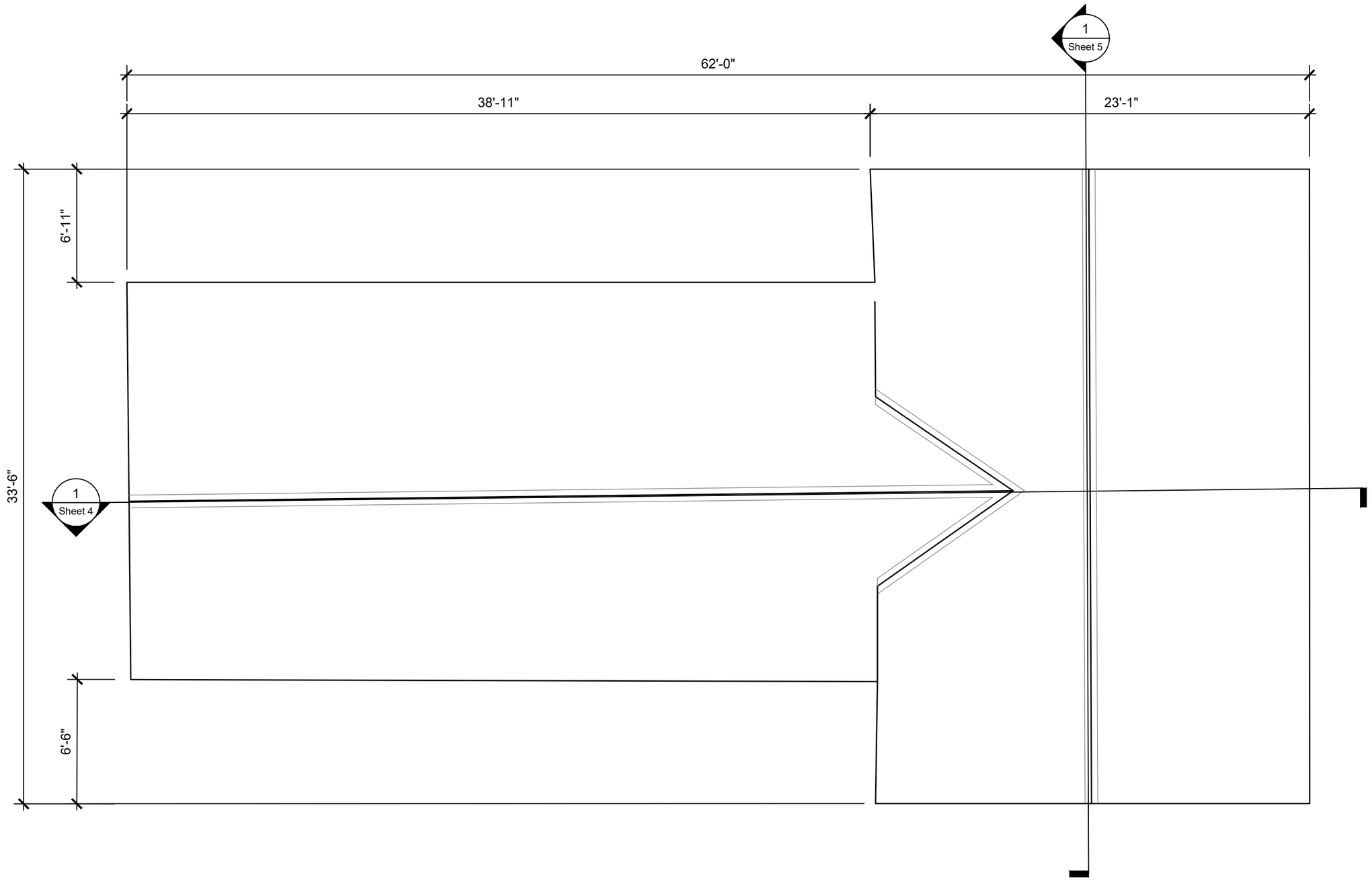
KINGSLEY PLANTATION BARN

J-CKSONVILLE, FLORID-

TIMUCU-N ECOLOGIC-L -ND HISTORIC PRESERVE

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1 Roof Plan

Scale: 3/16" = 1'-0"

N

SHEET 3 OF 5

HISTORIC STRUCTURE REPORT

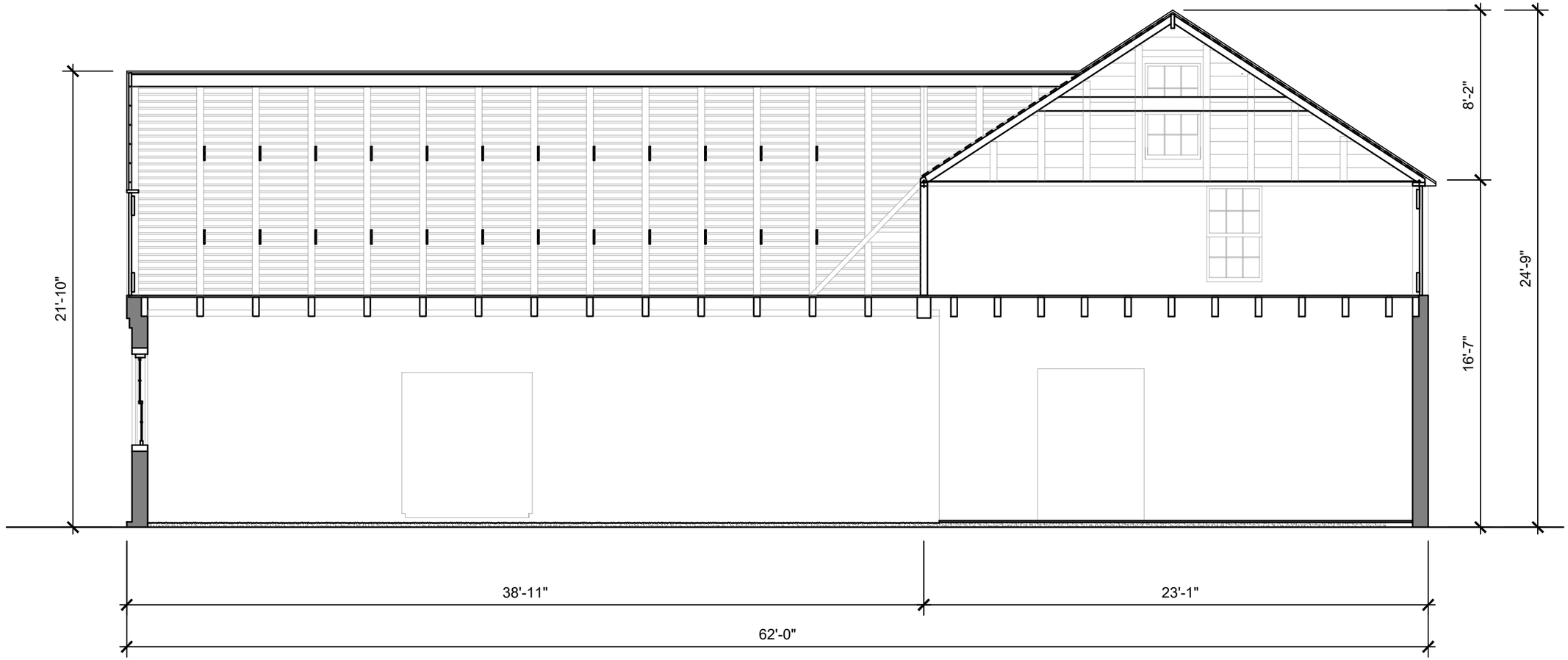
KINGSLEY PLANTATION BARN

J-CKSONVILLE, FLORID-

TIMUCU-N ECOLOGIC-L -ND HISTORIC PRESERVE

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1 North-South Section
Scale: 3/16" = 1'-0"

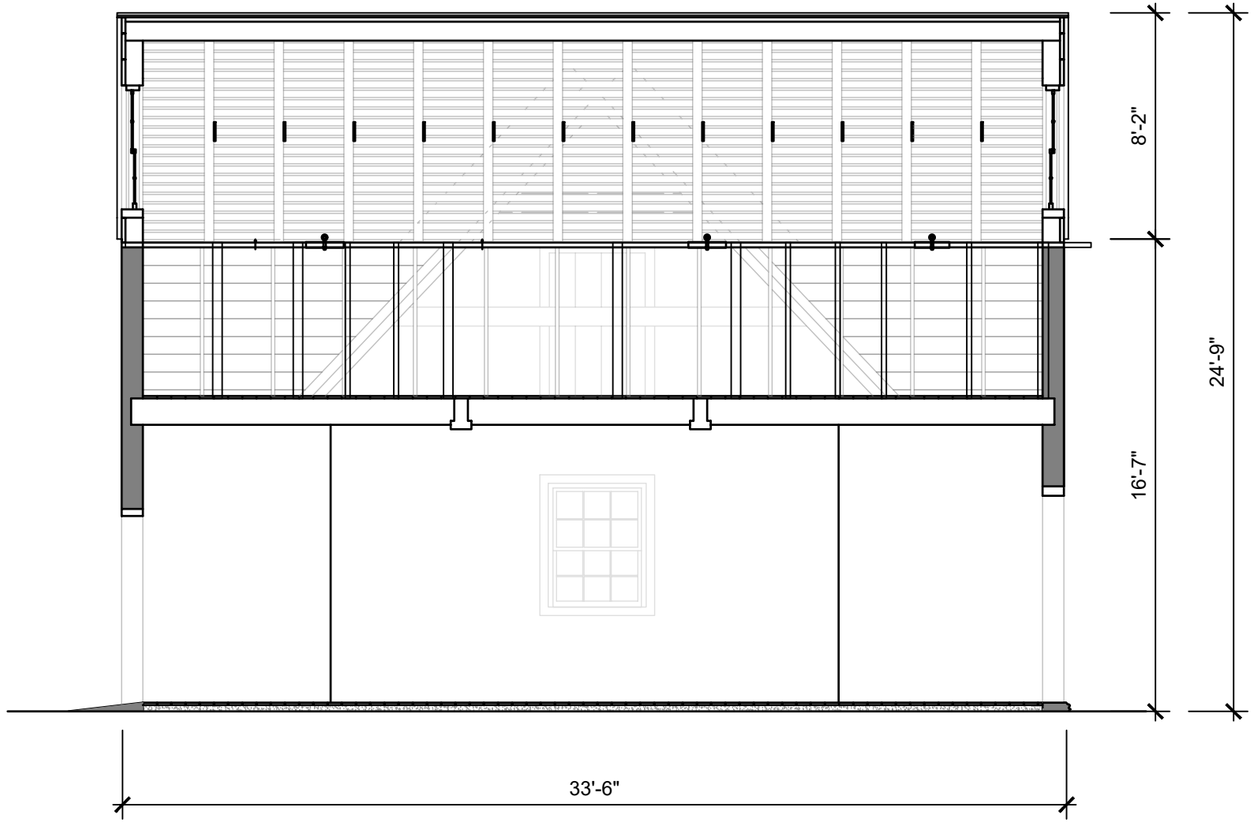
DRAWN BY: WISS, JANNEY, ELSTNER ASSOCIATES, INC., AUGUST 2024

NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR
SOUTHEAST REGIONAL OFFICE

KINGSLEY PLANTATION BARN
JACKSONVILLE, FLORIDA
TIMUCUAN ECOLOGICAL AND HISTORIC PRESERVE

HISTORIC STRUCTURE REPORT

SHEET
4 OF 5



1 East-West Section

Scale: 3/16" = 1'-0"

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KINGSLEY PLANTATION BARN
TIMUCU-N ECOLOGIC-L -ND HISTORIC PRESERVE
J-CKSONVILLE, FLORID-

HISTORIC STRUCTURE REPORT

SHEET 5 OF 5

Appendix C: Structural Analysis

Structural Analysis

Introduction and Background

The barn at Kingsley Plantation is located on the main portion of the Kingsley Plantation domestic precinct, which includes the main house, kitchen house, plantation barn, and other structures. Archeological and archival documentation indicate that the barn was constructed in 1798 by John McQueen. An addition was built by Zephaniah Kingsley after he acquired the property in 1814. Figure 1 shows an overall view of the site. The barn is set in a clearing within a wooded area approximately 250 feet southeast of the main house. The National Park Service (NPS) maintains the area around the plantation in mown turf grass for visitor and park personnel access. Wayside exhibits convey information about the history of the site to visitors.

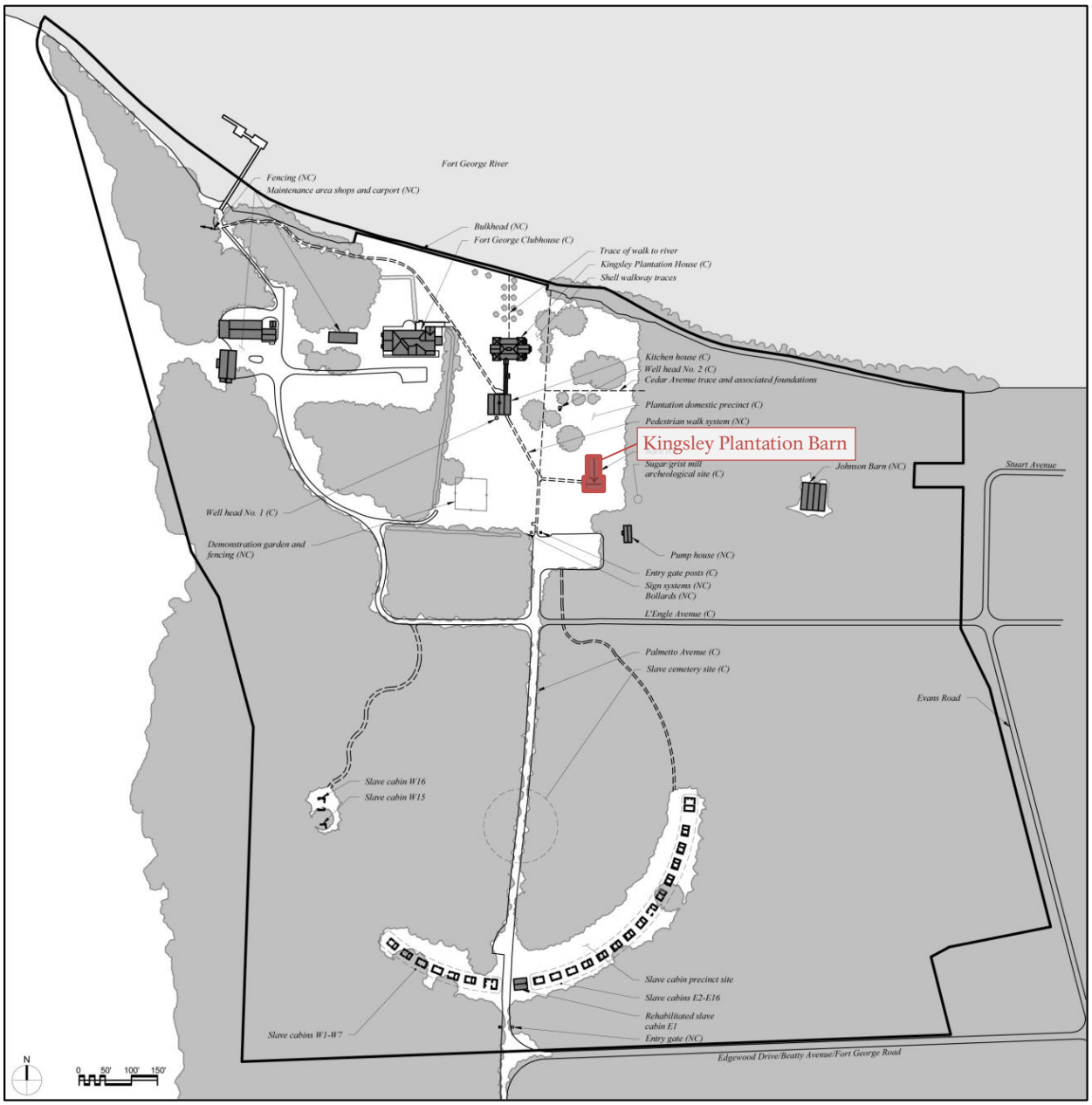


Figure 1. Site plan of the Kingsley Plantation. (Source: National Register Additional Documentation, 2016; annotated by the authors)

As part of the work performed for the Historic Structure Report (HSR) to which this report is an appendix, Wiss, Janney, Elstner Associates (WJE) performed a visual review of existing conditions and collected field measurements to review the structural conditions of selected representative components of the Kingsley Plantation barn. The purpose of the structural assessment is to provide the NPS with information regarding structural characteristics of Kingsley Plantation barn, in support of recommendations developed for this HSR and for reference by the park in planning continued use of the structure.

Based on information provided by the park, the barn will not be undergoing a change of occupancy, and no repair or alteration of the structural framing is intended at this time. Based on on-site discussions with representatives of NPS, the second story of the barn is intended to remain unoccupied and in non-storage use. The current governing Florida building code for existing buildings, 2023 Florida Building Code, Existing Buildings, eighth edition (FEBC), applies for Repairs, Alterations, Change in Occupancy, and Addition. However, it does not provide criteria for evaluation of existing structures, such as the scope of this assessment. Loading criteria required by the current code, 2023 Florida Building Code (FBC), which is included by reference in the FEBC, was used for the structural analysis of representative structural elements of the Kingsley Plantation barn. While the NPS is not governed by the FBC or FEBC, the structural analysis utilizes these codes as they incorporate the International Building Code (IBC) and International Existing Building Code (IEBC) with additional Florida-specific requirements.

Description of Structure

The Kingsley Plantation barn is a T-shaped structure that typically measures 62 feet north-south by 33 feet east-west in plan. The barn is composed of two eras of construction: the original building, or north portion, and the south addition. The north portion of the building runs east–west and is rectangular in plan. The south portion is also rectangular in plan but runs transverse to the north portion of the building structure. The two eras of construction vary in height, with the south roof ridge peak being approximately 3 feet taller than the north portion of the barn ridge height. The original barn's south exterior wall was removed to allow for the interior space created by the addition. The two building portions are integrated, and passage is free between the areas.

The north portion of the barn structure consists of tabby brick exterior walls, wood framing members supporting the attic (second level) and the roof structure, and wood roof shingles. The gable wall at the second level, on the north facade of the building, is wood framed. Tabby concrete is a form of unreinforced concrete which is typically comprised of lime, sand, shells, and water, either formed in bricks or cast in place. The tabby brick walls at the north portion of the barn typically measured approximately 9 inches thick and 10 feet in height. Entrances to the north portion of the barn area are positioned at the east and west facades.

The north portion of the barn's attic space is accessed through the addition's second level. Wood floor joists span east to west and support the floor planks of the above attic space. The joists are 3-5/8 inches wide, 11 inches tall, spaced approximately 32 inches on center, and are typically notched along the east and west exterior walls. The joists have a 16-inch bearing length onto the top plates along the exterior walls: a double top plate along the east exterior wall and single top plate along the west exterior wall. The top plates are anchored into the height of the tabby brick wall.

The north portion of the barn's wood roof rafters supporting the roof are spaced 30 to 32 inches on center and are 4 inches by 4 inches. At their bases, the rafters are fastened into the 16-inch-wide top plates along the east and west perimeters of the north part of the building. A wood ridge board, approximately 1 inch thick, runs north to south along the length of the north portion of the building, to which the rafters are toe nailed at their height. The height from the attic floor to the ridge member measures 10 feet and 10 inches. Two rows of wood collar ties are fastened to the roof rafters; the top member is located approximately 4 feet from the ridge

height and the bottom member is fastened approximately 3 feet from the attic floor surface. The roof consists of wood shingles on the sloped roof, roof valley transition at the south portion of the barn roof of the south portion of the barn, and wood lap siding at the north gable. An opening, measuring 36 inches wide by 60 inches tall, is centered at the north gable; the opening is secured with a wood panel door. A single opening with a wood panel door is similarly located at the center of the south facade at the ground level.

At the south portion of the barn, the exterior walls are constructed of tabby concrete, cast in place in wood forms. Two additional entrance openings are located at the east and west facades of the addition. The exterior walls are approximately 17 feet tall and 9 inches thick. At the second level, a replacement window is installed at an opening in the east tabby concrete exterior walls. An opening secured with a wooden door, similar to that observed at the north gable of the north portion of the barn, is located at the second level of the barn addition south facade. A single window is located at both the east and west roof gables, both of which are clad in wood lap siding. Additionally, wood lap siding is installed at the north facade of the south portion of the barn at the transition between the original and addition roofs.

The ceiling of the south portion of the barn area is created by the floor area of an unused second level, which is open to the second level (attic) of the south portion of the barn. The second-floor area is supported by wood joists running east-west, approximately 1-3/4 inches wide and 10 inches tall and spaced at 24 inches on center. At the east and west exterior walls, the exterior joist ends are pocketed into the tabby concrete walls and grouted in place with mortar. It is unclear when the mortar surrounding the joists was applied to the interior face of the tabby concrete. The interior bearing ends for the floor joists are fastened to two girder beams running north-south. The girders are 7-1/2 inches wide and 11-1/2 inches tall. At the south end of the girders, the beams bear on embedded steel plates cast into repair mortar, forming a corbel below the girder. At the north end of the north-south girders, the beams are anchored to a girder aligning with the south end of the north portion of the barn, spanning in the east-west direction and measuring 7-3/4 inches wide and 12 inches tall. This girder bears on the south portion tabby concrete exterior walls.

The walking surface of the second floor of the south portion of the barn is created by wood planks installed north-south over the joists viewed from the ground floor. The second floor is accessed via an opening in the elevated level floor planks at the southwest building corner. The second level has tabby concrete walls, which extend 5-1/2 feet above the floor surface at the east, west, and south exterior walls; the north wall opens to the attic at the north part of the barn. The roofing rafters supporting the sloped, wood-shingle roof are spaced from 30 to 32 inches on center and measure 2 inches wide by 4 inches deep. Wood collar ties are fastened to the roof rafters approximately 3 feet below the ridge height and measure 3/4 inch wide by 8 inches tall. At the south exterior wall, the rafters bear on a wood plate attached to the top edge of the tabby concrete exterior wall. The northern ends of the rafters bear on a wood-framed wall, equal height to the tabby concrete along the east, west, and south walls.

Four tie rod assemblies span across the width of the addition, between the south tabby concrete exterior wall and the interior wood-framed wall, equally spaced along the length of the south portion of the barn. The north ends of the cables are anchored through steel angles installed along the wood-framed wall between the original barn and addition. The south ends of the cables are anchored I-bolts attached to roof rafters bottom plate installed at the top of the tabby concrete wall.

Condition Assessment

A visual condition assessment was conducted for Kingsley Plantation barn as part of this project. Findings of the assessment are provided in the Physical Description and Condition Assessment chapter of the Historic Structure Report. No inspection openings or non-destructive evaluation was completed as part of this project.

Preliminary Structural Analysis

At representative components of the structure, section strength was evaluated for minimum loadings and load combinations per the requirements of the current governing code, the 2023 Florida Building Code, which references the following standards: American Society of Civil Engineers *Minimum Design Loads for Buildings and Other Structures*, dated 2016 (ASCE 7-16), The American Wood Council *National Design Specification*, dated 2018 (NDS 2018), and American Concrete Institute *Building Code Requirements for Structural Concrete*, dated 2019 (ACI 318-19). Due to the limitations of the assessment, a global lateral load assessment of the barn was not completed. Representative components of the structure were individually checked for minimum design loads.

Assumptions

Assumed material properties of the wood and tabby concrete were used for portions of the analysis due to the limited scope of the assessment. Assumptions are both inferred from observed conditions and based on commonly available construction materials contemporary with the building's construction. The following assumptions have been made for purposes of this preliminary analysis:

Wood

- Based on the infrequency of knots and straight slope of grain observed during the field observations, as well as historically available wood species in the geographic location of the site, the species of wood framing at the Kingsley Plantation barn was assumed to be southern pine with a grade of Select Structural.
- The roof rafters have adequate lateral restraint at the base supports from the floor joists in the north portion of the barn.

Tabby Concrete

- The compressive strength of the tabby concrete is assumed to be 2,500 pounds per square inch (psi).

Analysis of Wood Members

Roof Rafters

The section strength at midspan of the roof rafters of the north and south portions of the barn was evaluated for gravity and lateral loading, as summarized below.

- Dead load of actual weight of structural framing elements and roof
- Roof live load of 20 pounds per square foot (psf)
- Components and cladding lateral wind load, based on a maximum design basic wind speed of 128 miles per hour (mph) for a Risk Category II structure per ASCE7-16

The roof rafters of the original barn and the addition, with their associated geometry, were evaluated to determine the applied axial, flexural, and shear stresses due to the above loads. The combined applied axial and flexural stresses were subsequently compared to maximum allowable stresses of the historic wood and a similar method was assessment with the shear stresses. This comparison is commonly referred to as the allowable limit or demand-to-capacity ratio (DCR). Typically, a DCR greater than 1.0 indicates that the

calculated demand on a member exceeds the design capacity of the member, while a DCR equal to or less than 1.0 indicates that the demand on the individual frame members does not exceed the published allowable stresses of the individual members.

Based on the field observations, the roof framing was modelled such that the collar ties (horizontal members spanning between opposite rafters) do not resist the full wind lateral forces and thrust. This is due to the absence of a robust connection between the typical collar ties and rafters. The observed as-built connection consists of a few wood nails between the members, which by inspection is not adequate to resist relatively large lateral forces. This results in a model of the roof rafters that assumes the presence of either the attic floor (north portion) or tension rods (south portion) to resist wind lateral forces and thrust.

The design basic wind speed of 128 mph is taken from the current governing building code (2023 Florida Building Code, Existing Buildings, eighth edition) and corresponds to a 3-second gust speed at 33 feet above ground for Exposure Category D. As part of the wind load analysis, the basic wind speed is factored to accommodate for height, topographic, and exposure effects. With regards to other potential lateral loading, seismic demand is low at the site in comparison to wind and hence is not explicitly considered.

A uniform dead and roof live load were applied in the gravity direction to the rafters. The wind loads are applied perpendicular to the span of the rafters. The analysis results demonstrated that at end rafters (within approximately 40 inches of the end of the building), the rafters in the south portion of the barn were overstressed in combined axial and flexure.

For load combinations where dead, roof live, and wind loads are applied simultaneously to the member, the DCR for combined flexural and axial stresses was 0.31 for the roof rafters at the north portion of the barn and 4.0 for the roof rafters at the south portion of the barn. The DCR for shear stresses was 0.1 for the roof rafters at the north portion of the barn and 0.6 for the roof rafters at the south portion of the barn.

Given the large flexural DCR of the south rafters for combined stresses, we evaluated the roof rafters for load combinations where dead and roof live loads are applied simultaneously, as well as the application of dead load only.

For load combinations where dead load only is applied to the member, without roof live or wind, the DCR for combined flexural and axial stresses was 0.2 for the roof rafters at the south portion of the barn.

For load combinations where dead and roof live loads are applied simultaneously to the member, without wind, the DCR for combined flexural and axial stresses was 0.5 for the roof rafters at the south portion of the barn.

Additional structural analysis was completed to determine the maximum wind speed in which the south rafters would not be overstressed for load combinations where dead, roof live, and wind loads are applied simultaneously to the member. The maximum wind speed that will not overstress the south roof rafters is 70 mph.

For conditions where wind speeds are 70 mph or less, all wooden members of the roof structure have adequate capacity to meet the load demand from gravity (dead and roof live) loads and lateral (wind) loads.

Floor Joists

The section strength at midspan of the floor joists in both the north and south portions of the barn was evaluated for gravity loading, as summarized below.

- Dead load of actual weight of structural framing elements
- Floor live load of 25 psf (non-storage attic space)

The applied flexural and shear stresses were compared to the code-permitted allowable stresses of the wood. The applied stresses of the floor joists were found to be well below the code-permitted allowable stresses. The DCR for flexural stresses was 0.4 for the floor joists at the north portion of the barn and 0.3 for the floor joists at the south portion of the barn. The DCR for shear stresses was 0.2 for the north floor joists and 0.2 for the south floor joists.

The as-built construction of the floor joists is adequate to meet the gravity load demand, based on the above assumptions.

Analysis of Tabby Concrete

The section strength of a two-story wall section spanning from grade to the roof was evaluated for gravity and lateral loading, as summarized below.

- Dead load of actual weight of tabby concrete wall, roof framing wood members, and roof
- Roof live load of 20 pounds per square foot (psf)
- Components and cladding lateral wind load, based on a maximum design basic wind speed of 128 miles per hour (mph) for a Risk Category II structure per ASCE7-16

A two-story south wall vertical strip, 1 foot wide, at the southeast/southwest edge of the building was conservatively evaluated, as the height of the wall and loading from the south roof rafters result in higher stresses in the wall section at this location of the building (i.e., the governing load case for the walls). The wall section was evaluated for flexure, shear, and combined flexure and axial.

The applied loads on a 1 foot strip of wall consisted of the following: concentrated loads at the top of the wall from the roof rafters (resultants from the dead, live, and wind roof loads), concentrated loads at the second level floor joists (resultants from the dead and live floor loads), and a distributed wind load on the wall.

The DCR for flexure alone was 0.4. For combined flexure and axial, the DCR was 0.1. For out-of-plane shear, the DCR was 0.1.

The as-built construction of the tabby concrete is adequate to meet the gravity and load demand, based on the above assumptions.

Discussion and Conclusions

Most of the structural components of the barn that were analyzed for gravity and lateral loads, using conservative assumptions for material properties, adequately met the demand with an abundance of reserve capacity. The roof rafters in the south portion of the barn are the only structural components that are not adequate and are grossly overstressed under current-day design loads (with wind pressures from 128 mph winds). The structural analysis demonstrated that the south roof rafters have adequate capacity for gravity loading alone (dead and roof live), or a combination of gravity loading and lateral loading for wind speeds up to 70 mph.

Factors that contribute to the calculated overstress of the south roof rafters include the material assumptions, geometry of the roof, and the member size. The material property used in analysis is assumed to be southern pine. The allowable stresses for this species of wood published in NDS 2018 reflect downgraded numbers due to changes in the wood industry's growing and harvesting of this species. Historic wood species often are

significantly denser and stronger than current day wood species. It is likely that the material properties of the original wood used to construct the Kingsley Plantation barn are stronger than the assumptions made in this study. This can only be confirmed if a wood sample is taken, and the species of the wood is determined. The visual grading of the wood would not change; however, a different species of wood may yield higher allowable stresses that lower the calculated DCRs.

A factor that made a significant difference in the analysis of the roof rafters in the two sections of the barn is the slope of the roof. The south roof rafters were documented to be at a shallower angle than the north roof rafters. The north roof of the barn is at an incline greater than 45 degrees from horizontal, which is considered a steep roof. In accordance with ASCE, steeper roofs, such as the north portion of the barn, experience lower uplift pressures. The south roof rafters develop high uplift roof pressures from wind forces, compared to the north roof rafters.

The member size of the south rafters also limits the capacity. The north rafters are twice the size of the south rafters. The 2x4 south rafters have a relatively long span and large spacing between members, which creates higher demand on the member.

Measures to strengthen the south rafters include the addition of wood members to decrease the spacing between roof rafters, increasing the cross sectional area of the rafters (built-up sections), shortening the span length (added supports), shortening the unbraced length, or a combination thereof.

The tension rods spanning between the base of the south roof rafters are necessary to resist lateral loading at the base of the roof rafters. At the south end of the south roof, the tension rods frame into the top of the tabby concrete wall. At the north end of the south roof, the tension rods frame into a wood-framed stud wall. The failed tension rods should be repaired, and further analysis should be completed to determine adequate spacing and size of the tension rods.

The diagonal cracks over the framed openings throughout the barn suggests that the tabby concrete directly above the lintel is inadequately supported, causing deflection or bowing that creates the triangular shaped cracks. Further investigation should be completed to determine the adequacy of the wood lintel above the opening to support the tabby concrete above.

Water staining was observed at isolated locations throughout the wood roof framing. Ensuring that the roof is free of water leaks will prolong the lifespan of the historic wood structure.

The sistered wood member to floor joist splice in the north portion of barn did not appear to be an engineered design or repair, due to the scattered pattern of the installed nails and relatively small sistered member sizes, as compared to the original wood joist section. It appears that the purpose of the additional wood was to restore bearing at the end of the existing joist. This existing repair should be further analyzed for structural adequacy and supplemented if needed.

Recommendations

- Wood and tabby concrete deterioration or distress should be repaired using repair techniques and procedures described in the Treatments chapter of the Historic Structure Report.
- Until strengthening of the south roof rafters is installed, limit occupancy in the structure to periods with wind gusts of 70 mph or less.
- The failed tension rods should be repaired, and further analysis should be completed to determine adequate spacing and size of the tension rods.
- Further structural analysis is recommended to determine the adequacy of the north floor joist splice.
- Further investigation should be completed to determine the adequacy of the wood lintels above the framed openings in the tabby concrete.

Appendix D: Materials Studies

WJE

KINGSLEY PLANTATION BARN HISTORIC STRUCTURE REPORT

Laboratory Studies of Tabby Concrete Samples

Petrographic studies were conducted on tabby plaster, concrete, brick, and mortar to characterize the materials. The samples represent historic tabby concrete and mortar, as well as repair material, removed from Kingsley Plantation Barn structure at the Timucuan Ecological and Historic Preserve in Jacksonville, Florida. Laboratory studies were conducted at the WJE in-house Janney Technical Center laboratory in Northbrook, Illinois, by Daniela Mauro, WJE Senior Associate and Petrographer.

SAMPLES

Common to all of the samples is a white to off white overall paste color. Sample identifications, removal location and field description information, and a brief description of the samples as received in WJE's Janney Technical Center laboratory is given in Table 1. Images of the samples as received in WJE's laboratory are shown in Figure 1 through Figure 9.

Table 1. Sample Descriptions

Sample Number	Field Description	Sample Description
KPB-1	Interior, north end; plaster scored to resemble brick coursing; has tabby substrate	▪ Two pieces of plaster nominally 2-1/2 in. x 2-1/2 in. and 1/2 in. thick. ▪ Exterior surface is relatively smooth, with some texture. Interior surface is rough in texture, with large white aggregate present. ▪ Sample does not contain visible intact shell fragments. Low volume of translucent sand observed. Majority of sample represents paste. ▪ Material is soft and highly absorptive of water.
KPB-2	Interior, north end; repair patch at east wall door opening, similar to KPB-1	▪ One piece of plaster/mortar nominally 1-1/2 in. x 1-1/2 in. x 2-3/4 in. ▪ Two opposing sides (interior/exterior) generally flat. One possible tooled surface present. ▪ Material is soft and highly absorptive of water.
KPB-4	Exterior, poured tabby, south	▪ Multiple fragments of tabby concrete, composed primarily of large intact or mostly intact half shell fragments. ▪ Little paste/mortar coating shells. ▪ A few shell particles contain a white coating material adhered to exterior surface of shells. ▪ Concave surfaces of shells exhibit dirt and green/brown biological growth.
KPB-5	Interior, east facade; repair patch around joist	▪ One irregularly shaped piece of gray mortar nominally 2 in. x 2-3/4 in. x 1/2 in. thick. ▪ Mortar is hard, slowly absorptive of water. ▪ Some areas of possible tabby concrete/plaster/mortar intermixed with grey mortar.

Sample Number	Field Description	Sample Description
KPB-6	Interior, west wall poured tabby	▪ Multiple fragments of tabby concrete. Full half shells present in sample: generally covered with paste on one surface and a coating on the opposing surface. ▪ Localized areas of light gray (discolored/soiled white) mortar bonded to some shells.
KPB-7	Exterior tabby brick, east wall	▪ Multiple small fragments of white material that appears to be paste-rich, with no visible shell fragments. ▪ Majority of sample is powder. ▪ Material is soft and highly absorptive of water. Material is friable.
KPB-10	Interior west wall, tabby brick (original); may have plaster remnants	▪ Multiple small fragments of tabby concrete. ▪ Low volume of shells observed mostly white mortar fragments with sand. ▪ Majority of sample is powder. ▪ Material is soft and highly absorptive of water.
KPB-12	Interior plaster over tabby brick (not original) repair; north building, east wall	▪ Multiple fragments of off-white plaster of variable size, largest 3-1/2 in. x 4-1/2 in. x 3/8 in. thick. ▪ Opposing largest (interior/exterior) faces are generally flat, other faces appear to represent fractured surfaces. ▪ No visible large shell fragments. ▪ Localized areas exhibit dirt and green/brown biological growth.
KPB-13	Tabby brick mortar, (historic)	▪ Multiple fragments of off-white mortar. ▪ One side of largest fragment appears to represent a tooled surface. ▪ Majority of sample is crumbled powder. ▪ Material is soft and highly absorptive of water.

Portions of seven samples were prepared for detailed laboratory studies, to further examine the microstructure and characterize the different materials. Selected samples included KPB-1, KPB-4, KPB-6, KPB-7, KPB-10, KPB-12, and KPB-13.

PETROGRAPHIC STUDIES

Methods

Petrographic studies were conducted on the seven selected samples in accordance with ASTM C856, *Standard Practice for Petrographic Examination of Hardened Concrete*. Each sample was examined visually, and detailed studies of the as-received surfaces were conducted at magnifications up to 40X using a stereomicroscope. Blue-dye epoxy-impregnated thin sections were prepared from portions of the seven selected samples to assess paste and aggregate constituents. Unprepared portions of each sample (i.e., in their as-received condition) and the prepared thin sections were examined as part of the studies to evaluate water absorbency and paste hardness. Thin sections were examined at magnifications ranging from 25X to 200X using a petrographic (polarized light) microscope.

Findings

Interior Plaster – Samples KPB-1, KPB-12

Samples KPB-1 and KPB-12 both represent portions of interior plaster and appear similar to the unaided eye but differ in microstructure and composition.

Sample KPB-1 represents plaster that contains quartz sand dispersed in a cementitious matrix. The matrix is fully carbonated and contains hydraulic particles that appear similar to a slag-like component, mixed with hydrated lime. The hydraulic component appears isotropic under cross-polarized light and is glass-like but contains an iron phase that was observed to be present within most particles (Figure 10). Some particles appear similar in shape, but exhibit different optical characteristics, to small clusters of historic portland cement, with particles that appear similar to rounded belites (a phase present in portland cement), with an iron phase between the particles (Figure 11). However, the hydraulic particles do not exhibit hydration rims, as would be expected with typical hydraulic materials such as slag cements and portland cements. The hydraulic particles are dispersed throughout the layer and occasional lumps or nodules of cementitious material were observed (Figure 12 and Figure 13). The nodules are composed of intermixed hydraulic particles and hydrated lime (Figure 13). The hydraulic particles may be the result of siliceous sand or similar material that was included with the oyster shells used to fabricate the hydrated lime, and do not appear to be a modern repair. Also present within the paste are particles of limestone that are similar in size to the hydrated lime and hydraulic particles. The limestone is judged to be part of the paste, and not the aggregate fraction. The paste is not air entrained and contains a low volume of irregularly shaped voids, which is different from each of the other examined samples. No secondary deposits were observed in the air voids. The plaster contains natural quartz sand. Quartz particles are subround to subangular and are clear to slightly opaque. The sand is well dispersed throughout the layer.

Sample KPB-12 represents a fully carbonated lime-based plaster that was reportedly removed over tabby brick. The matrix is composed of hydrated lime, with no other cementitious components observed (Figure 14). Sample KPB-12 is not air entrained but contains a high volume of irregularly shaped air voids. The air voids do not contain secondary deposits. Sample KPB-12 contains a natural siliceous sand and crushed shell fragments dispersed in the hydrated lime paste (Figure 15). The sand in Sample KPB-12 appears similar in shape, color, and composition to the sand in Sample KPB-1.

Comparatively, Sample KPB-1 is slightly harder than Sample KPB-12, but no gross difference in friability and water absorption was observed between the samples.

Tabby Concrete – Samples KPB-4, KPB-6

Samples KPB-4 and KPB-6 represent a typical tabby concrete mixture; however, Sample KPB-4 consists of primarily half shell fragments with thin layers of paste coating the particles, and no intact portions of material with abundant paste. In Sample KPB-4, the paste, where present over the shell fragments, contains hydrated lime and clear to opaque natural quartz sand. The shell particles and thin layer of paste contain a white coating (Figure 16). Chemical studies were completed to identify the coating composition (see chemical studies section of this report). In Sample KPB-4, the shell fragments are hard, while the thin layer of paste is soft and porous. The white coating appears weathered and often contains green, brown, or black growth or deposits.

Sample KPB-6 represents a fully carbonated lime-based portion of tabby concrete. The concrete is composed of intact half oyster shells, fragments of broken oyster shells, and natural quartz sand (all serving as aggregate) dispersed in hydrated lime paste (Figure 17). No other type of cementitious material was observed in the sample. Hydrated lime lumps are often larger than sand particles and exhibit internal cracking (Figure 18). The sample was soft, slightly friable, and highly absorptive of water. Water droplets placed on the tabby concrete were quickly absorbed into the paste.

In sample KPB-6, the sand represents a natural quartz sand that is clear to slightly opaque. Particles are subround to subangular and are generally uniformly dispersed throughout the paste. The sand is predominantly quartz but contains a trace volume of opaque particles and burnt wood/plant material.

Tabby Brick – Samples KPB-7, KPB-10

Samples KPB-7 and KPB-10 both represent fully carbonated lime-based portions of tabby concrete that were formed into prisms and used similarly to brick. Both samples contain portions of crushed shells as part of the aggregate, along with subround to subangular quartz sand (Figure 19).

The two tabby brick samples appeared similar in composition to the tabby concrete samples KPB-4 and KPB-6. Both samples contain abundant irregularly shaped void space, with no secondary deposits observed in the voids. The sand appears similar and is comprised of clear to opaque quartz particles. Sample KPB-7 contained a trace volume of opaque particles that were not observed in Sample KPB-10. Hydrated lime lumps were often significantly larger than sand particles (Figure 20).

Tabby Brick Mortar – Sample KPB-13

Sample KPB-13 represents a fully carbonated hydrated lime-based mortar. The composition of the mortar is similar to the examined tabby concrete and tabby brick samples but does not contain coarse portions of shells or shell fragments. The mortar contains a natural siliceous quartz sand and shell fragments dispersed in hydrated lime paste (Figure 21). A trace amount of limestone is present in the sand. The mortar contains abundant irregularly shaped voids, but no secondary deposits were present in the voids.

CHEMICAL STUDIES

A portion of the white coating, appearing similar in composition to the coating present on Sample KPB-4, was analyzed to determine its general composition. The coating sample was taken from the east exterior wall of the north wing of the barn. The coating sample is representative of the coating applied to the exterior of the structure.

Methods

The coating sample was analyzed using Fourier Transform Infrared Spectroscopy (FTIR). FTIR spectroscopy is used to identify molecular structures. It is most useful for the identification of polymers and other organic components, although information about inorganic components can also be obtained. Infrared radiation supplies sufficient energy to produce vibrational motion in molecules. The output of the analysis is a plot showing peaks of absorbance at energies associated with vibrations of functional groups (that is, a defined combination of bonded atoms). The spectrum can be interpreted based on the functional groups detected by the FTIR analysis as well as comparison to a library of spectra of known materials. In

transmission FTIR, the specimen of interest, typically a solvent extract of the material, is placed on an infrared-transparent crystal and analyzed.

The coating sample was extracted with chloroform solvent and the extracted residue was analyzed by transmission FTIR.

Findings

The spectrum produced when analyzing the coating is consistent with a vinyl-acrylic copolymer (Figure 22), a type of acrylic that is used in manufacturing of acrylic paints.

SUMMARY

Petrographic studies were completed on tabby plaster, concrete, brick, and mortar removed from the Kingsley Plantation barn structure at the Timucuan Ecological and Historic Preserve in Jacksonville, Florida. The samples were examined in order to assess their general composition and characterize the materials present. The samples were compositionally similar, consisting of hydrated lime as the binder with quartz sand, and varying sizes of shell fragments depending on the sample type. The concrete and brick samples contained the largest shell fragments, and the plaster and mortar contained smaller portions of shells. Sample KPB-1 contained a different binder composition than the other examined samples, with a hydraulic component present with the hydrated lime.

Briefly summarized, tabby concrete is a type of historic concrete that was made with oyster shells. Historically, the process to make the concrete typically began with the crushing and burning of oyster shells, producing quicklime. The quicklime was typically then slaked, or mixed with water, to hydrate the quicklime, producing hydrated lime. The hydrated lime was mixed with additional portions of oyster shells, sand, ash (from the production of quicklime), and water to create a concrete mix that was used to construct bricks or other structures using forms. Tabby concrete is unique in that it includes the use of hydrated lime as the main binder constituent, and does not include other types of cement, such as natural cement and/or portland cement.

All of the examined samples were fully carbonated and contained similar constituents, except for Sample KPB-1. The samples all exhibit binders made from hydrated lime, with varying proportions of filler that includes primarily oyster shell halves and fragments and quartz sand. Some hydrated lime lumps exhibited internal fracturing that may be indicative of expansion of the lime within the binder after being mixed with water in the tabby material. The lime fabricated for use in the tabby concrete and lime wash was first heated to produce quicklime, the result of the burning of the shell fragments. This quicklime must be mixed with sufficient water in order to hydrate, or slake, it. If the lime was not fully slaked, it is possible that some free lime was present in the particles, and as the particles were mixed into a paste, the lime continued to hydrate, and expanded. While occasional particles exhibit cracking that may represent expansion, no cracking in the paste around the particles was observed.

In addition to the hydrated lime present in each of the examined samples, Sample KPB-1 contains a second cementitious component. The component appears glass-like, is isotropic under cross-polarized light, and is dispersed throughout the paste and also present in nodules of cementitious material within the paste. Some of these hydraulic particles appear similar in shape to historic American portland

cements, with rounded particles surrounded by an iron phase; however, the optical characteristics of the particles are different than historic portland cements.

The examined samples are all soft, exhibit high paste porosity, and quickly absorb water. The matrices in each sample were observed to contain a high volume of air voids, except for Sample KPB-1, which exhibited little air. Sample KPB-1 was slightly harder than other samples, but did not exhibit other features, such as water absorbency or friability, that differed greatly from the other samples. The coating present on Sample KPB-4 is consistent with a vinyl-acrylic copolymer, which is used to fabricate acrylic paint.

FIGURES



Figure 1. Images of KPB-1, as received in WJE's Janney Technical Center laboratory.



Figure 2. Images of KPB-2, as received in WJE's Janney Technical Center laboratory.

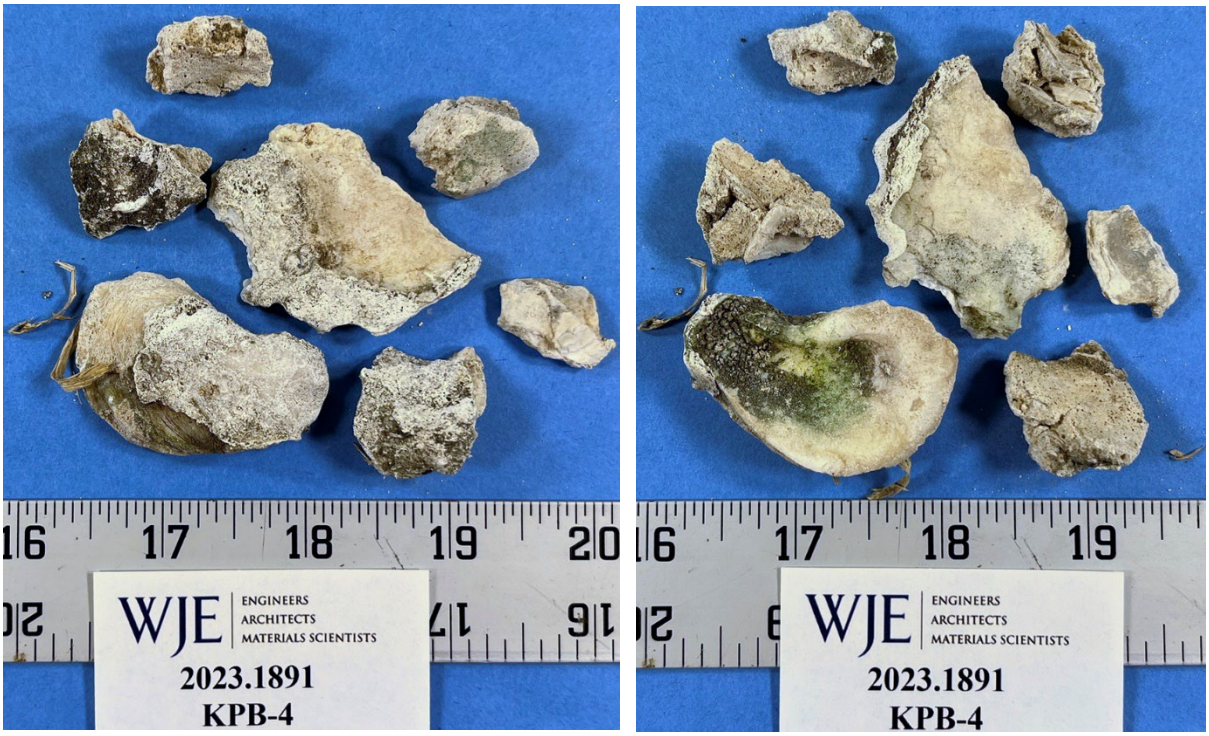


Figure 3. Images of KPB-4, as received in WJE's Janney Technical Center laboratory.

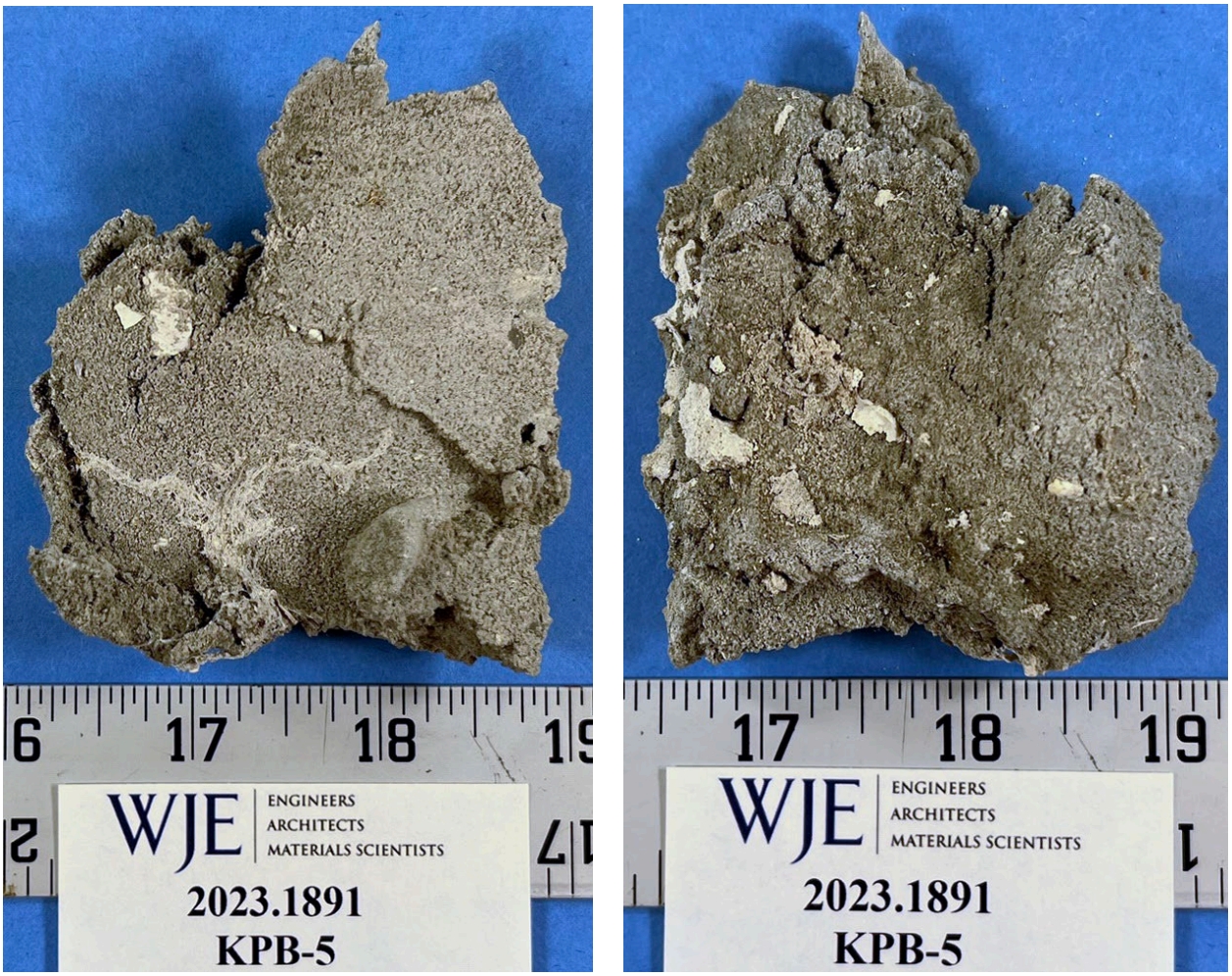


Figure 4. Images of KPB-5, as received in WJE's Janney Technical Center laboratory.



Figure 5. Images of KPB-6, as received in WJE's Janney Technical Center laboratory.

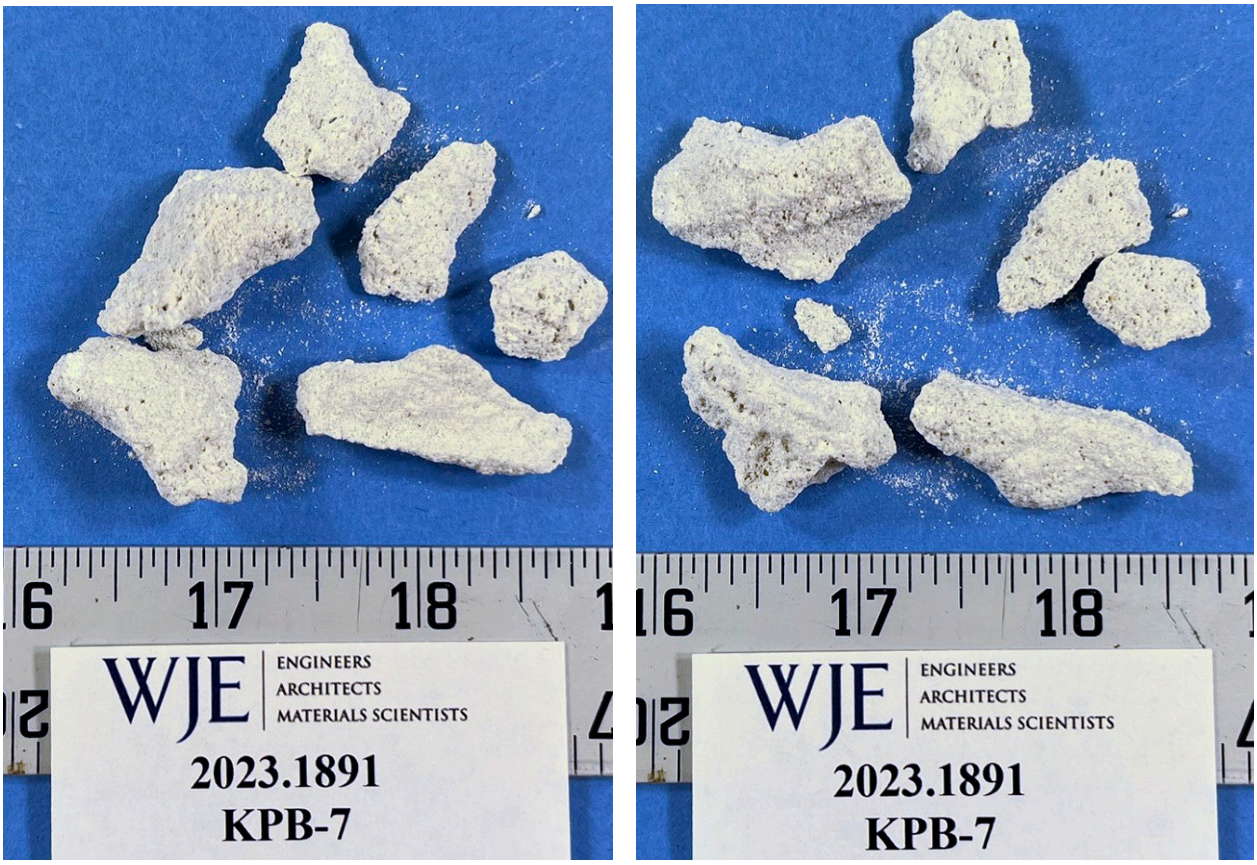


Figure 6. Images of KPB-7, as received in WJE's Janney Technical Center laboratory.



Figure 7. Images of KPB-10, as received in WJE's Janney Technical Center laboratory.

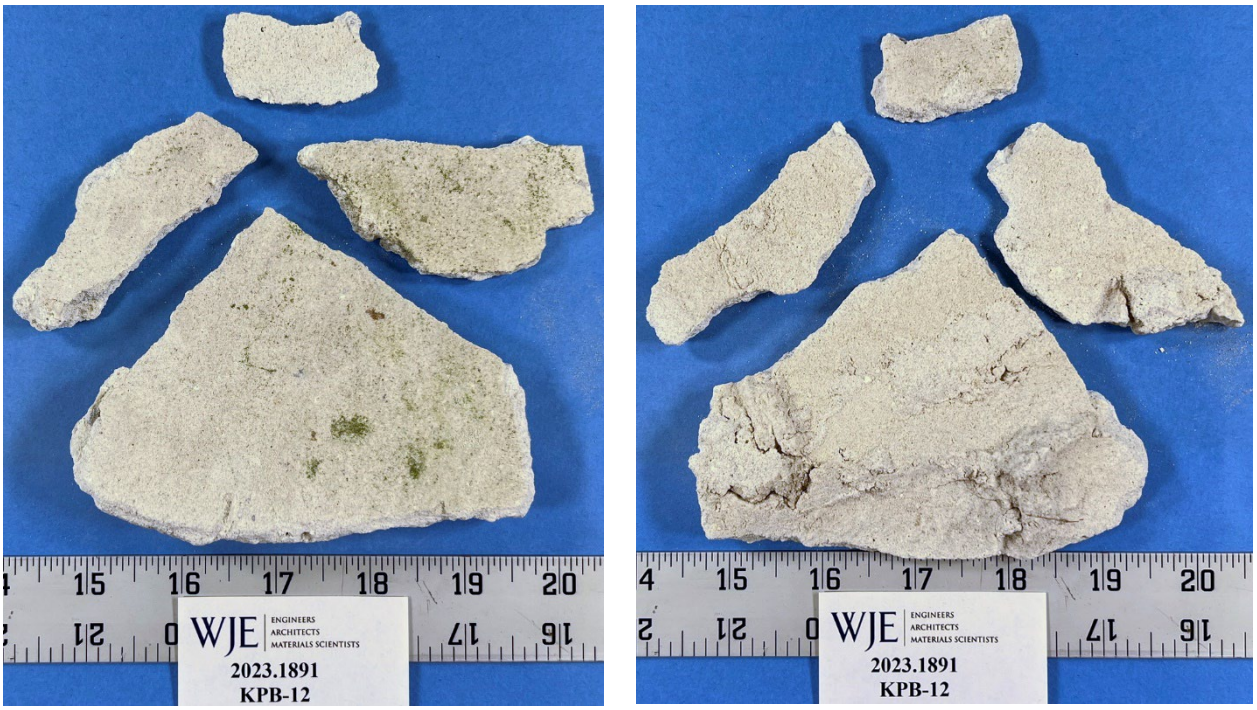


Figure 8. Images of KPB-12, as received in WJE's Janney Technical Center laboratory.

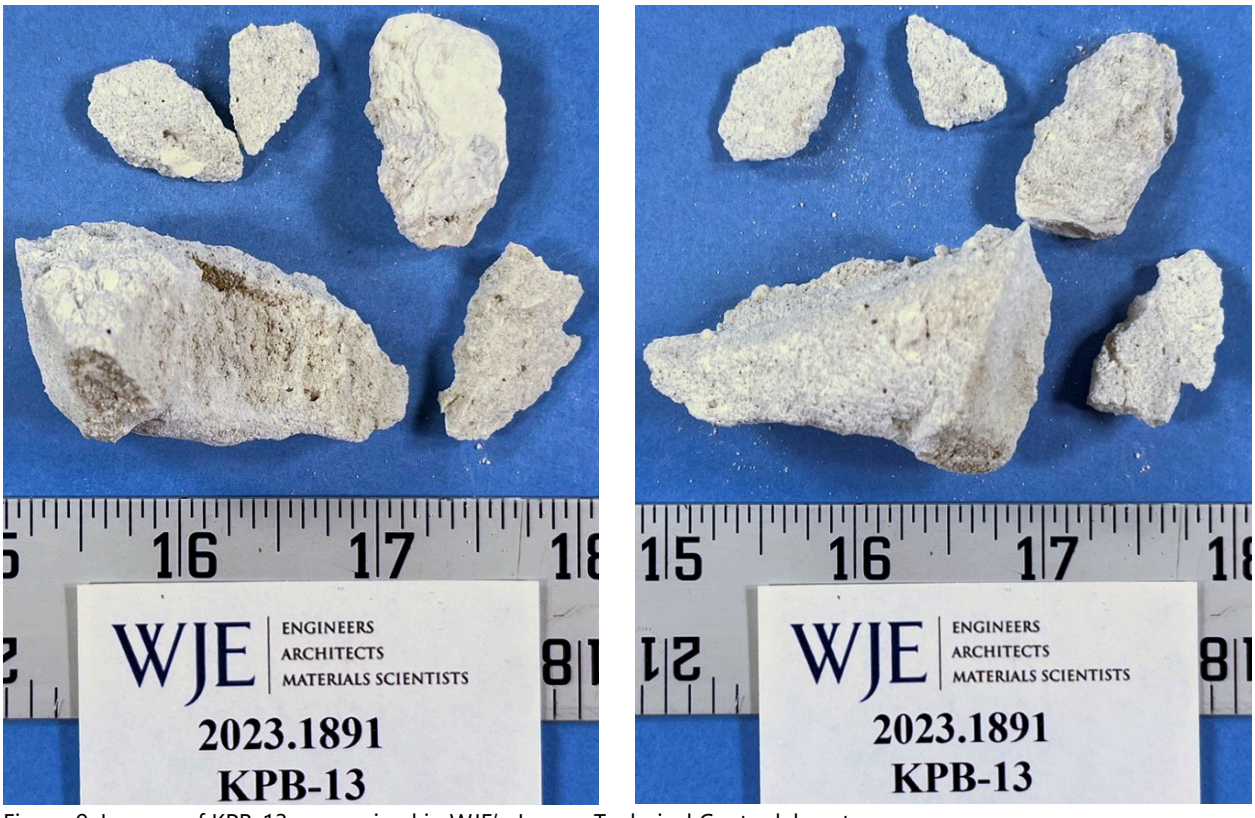


Figure 9. Images of KPB-13, as received in WJE's Janney Technical Center laboratory.

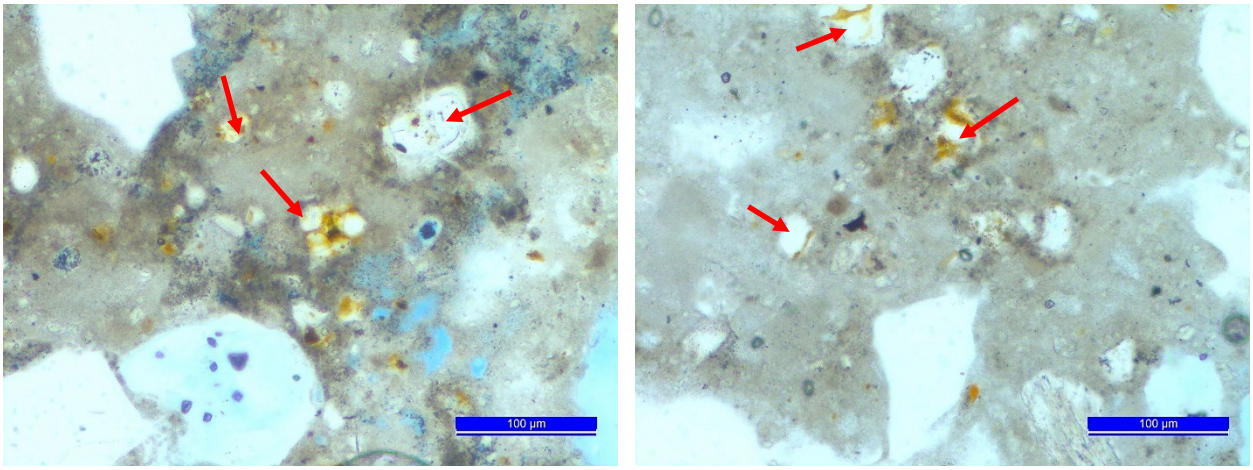


Figure 10. Sample KPB-1. PPL images showing the appearance of hydraulic particles present in the paste (red arrows point to some of the particles).[1] The orange to brown color in the particles represents an iron phase.

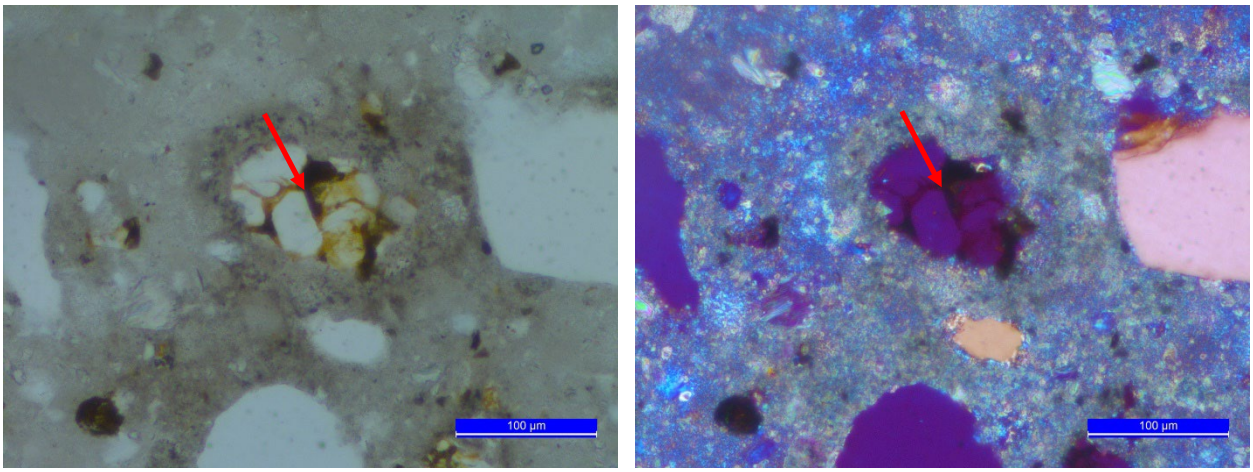


Figure 11. Sample KPB-1. PPL (left) and XPLP (right) images of a hydraulic particle (red arrows) that appears similar to a belite nest but exhibits different optical characteristics than portland cement.

[1] Images of the thin sections were taken using various lighting conditions. PPL indicates the image was taken in plane polarized light, XPL indicates the image was taken in cross-polarized light, and XPLP indicates that the image was taken in cross-polarized light with a gypsum plate.

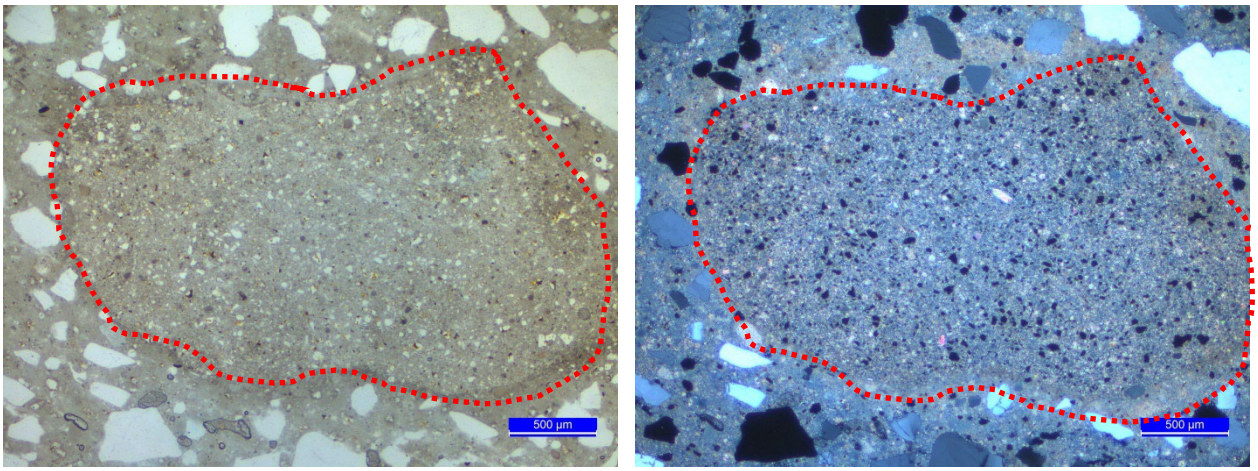


Figure 12. Sample KPB-1. Images taken in PPL (left) and XPLP (right) showing a cementitious nodule (outlined with red dotted line) present. The nodule was composed of hydraulic particles and hydrated lime.

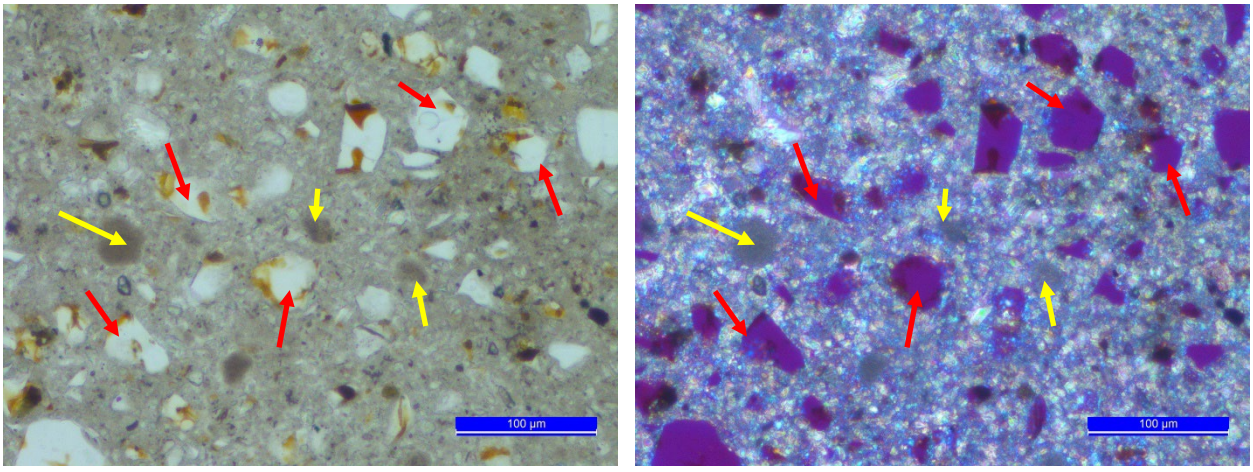


Figure 13. Sample KPB-1. PPL (left) and XPLP (right) images of the composition of the cementitious lump shown in Figure 12. Red arrows point to some of the hydraulic particles, and yellow arrows point to hydrated lime lumps.

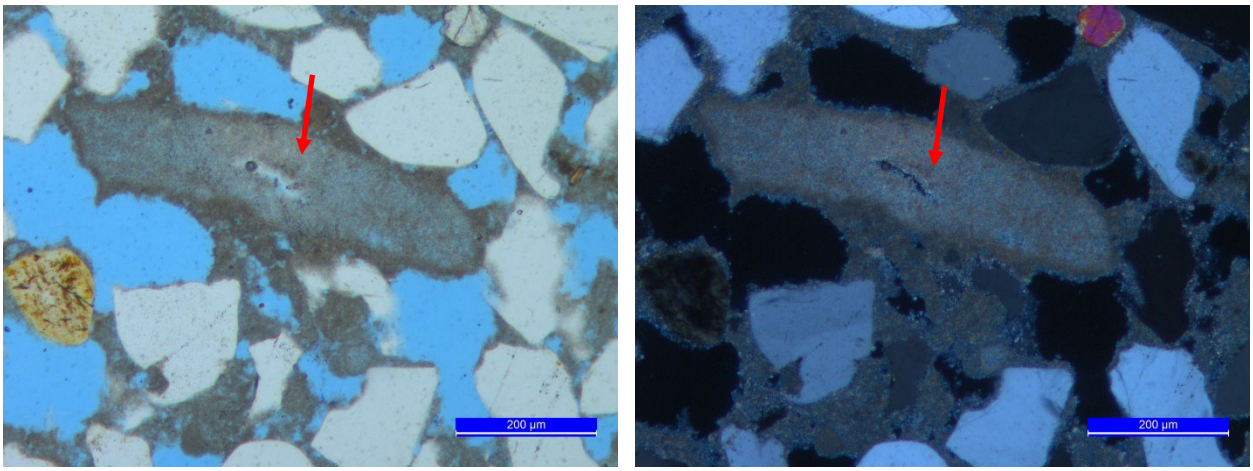


Figure 14. Sample KPB-12. PPL (left) and XPLP (right) images of the typical appearance of hydrated lime (red arrows) in the sample. In the left image, the blue areas represent the high volume of void space present in this plaster sample.

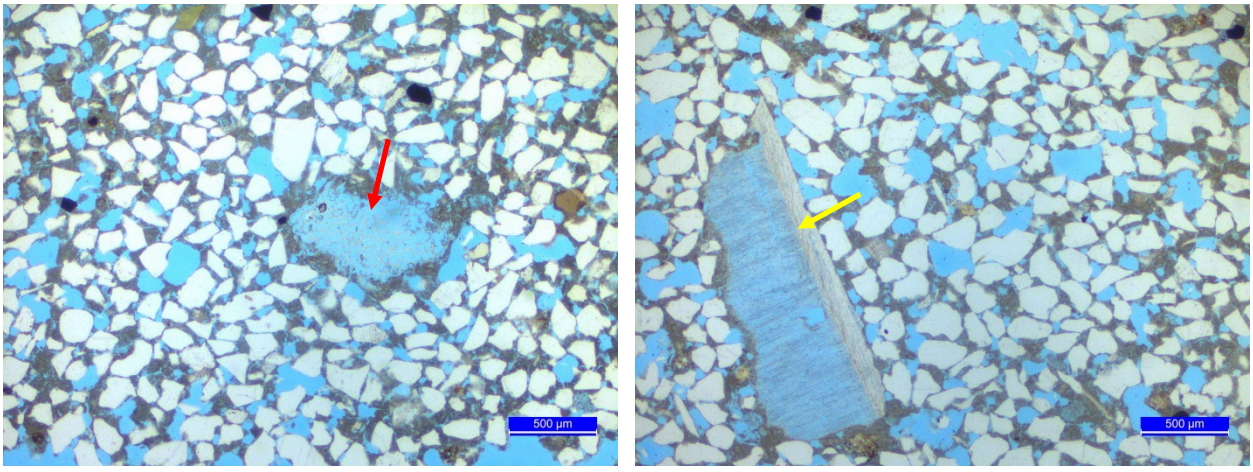


Figure 15. Sample KPB-12. PPL images showing the typical appearance of the sample. In the images, the blue areas represent void space, the white areas represent the quartz sand, and the brown material between the voids and the sand represent the paste. This sample contained a trace amount of wood particles (red arrow) and crushed shell particles (yellow arrow) within the sand.

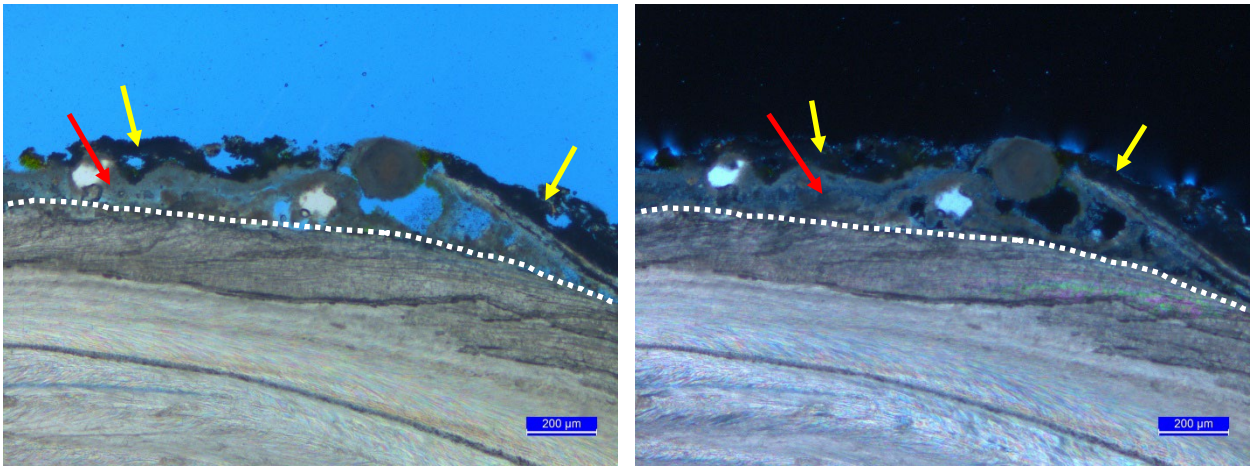


Figure 16. Sample KPB-4. PPL (left) and XPL (right) images showing a shell fragment (takes up bottom half of image, white dotted line marks the boundary between the shell and the paste) that contains a thin layer of paste (red arrows) and an opaque coating (yellow arrows) on its exterior surface.

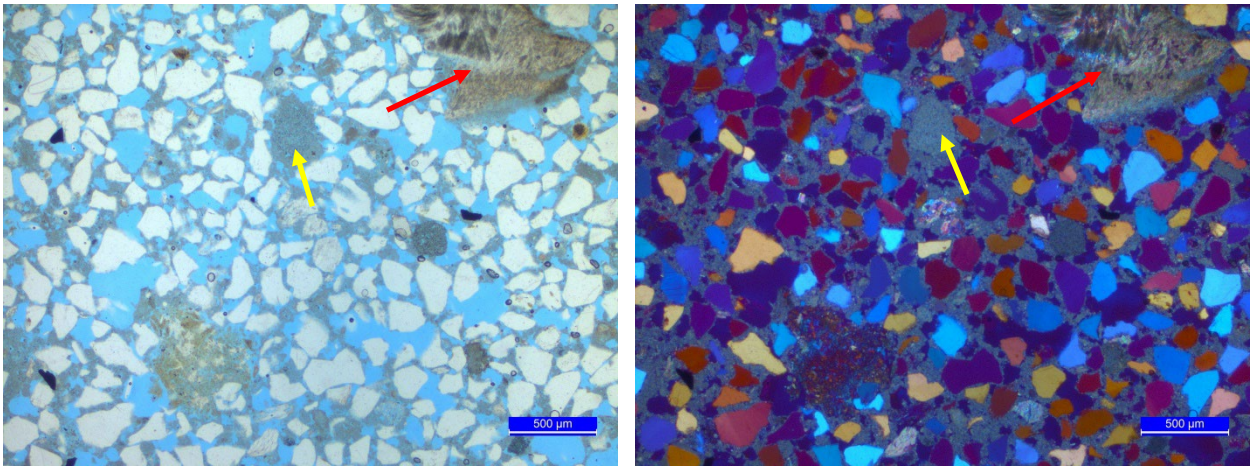


Figure 17. Sample KPB-6. PPL (left) and XPLP (right) images showing an overview of the sample. In the left image, the white areas represent quartz sand. Red arrows point to shell fragment and yellow arrows point to a hydrated lime lump. In the left image, the blue areas represent void space.

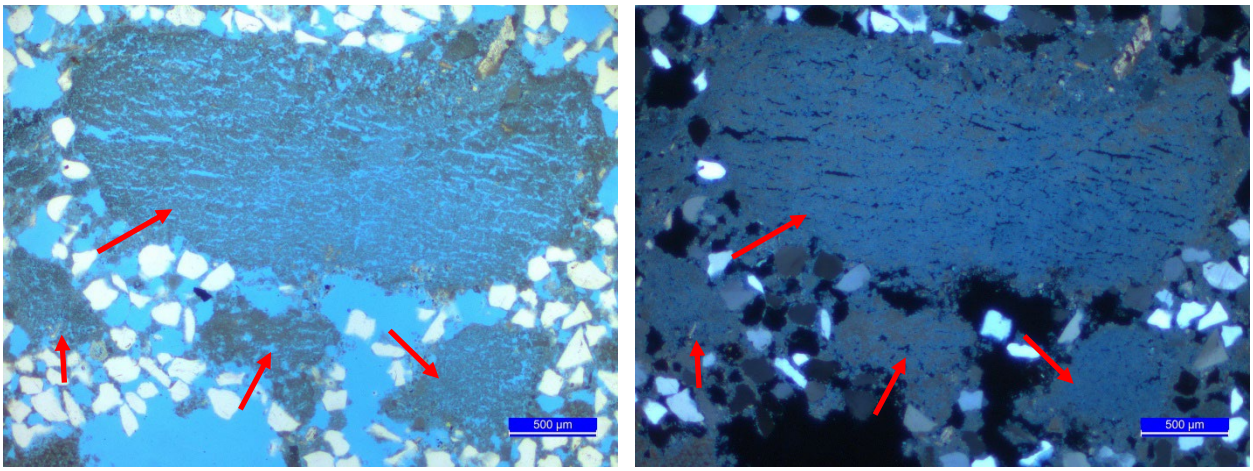


Figure 18. Sample KPB-6. PPL (left) and XPL (right) images showing the typical appearance of the hydrated lime (red arrows). Note the size of the lime compared to the sand, which appears white in the left image.

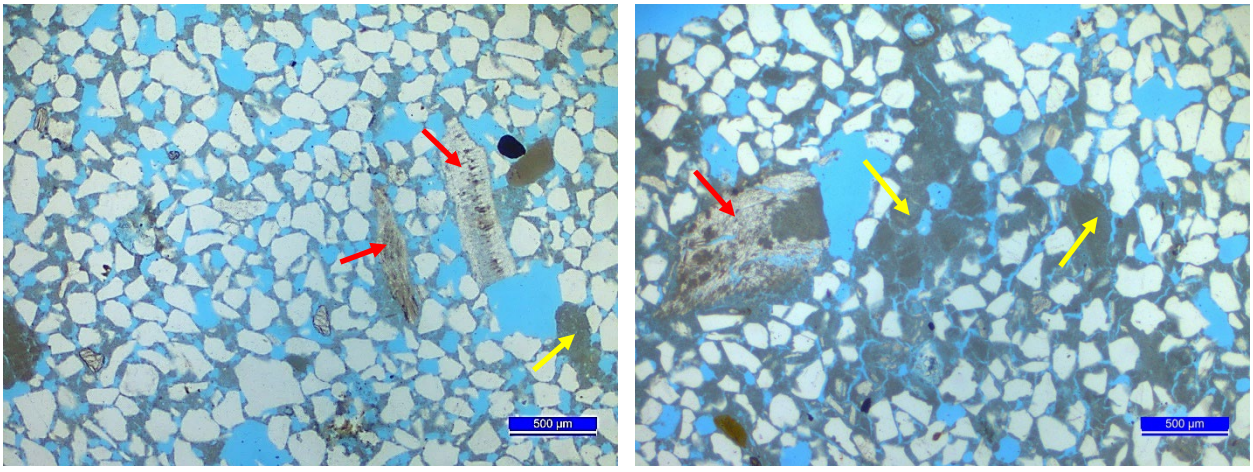


Figure 19. PPL images of Sample KPB-7 (left) and KPB-10 (right) showing representative overviews of their microstructure. In both images the blue space represents quartz sand. Red arrows point to portions of shells and yellow arrows point to hydrated lime lumps.

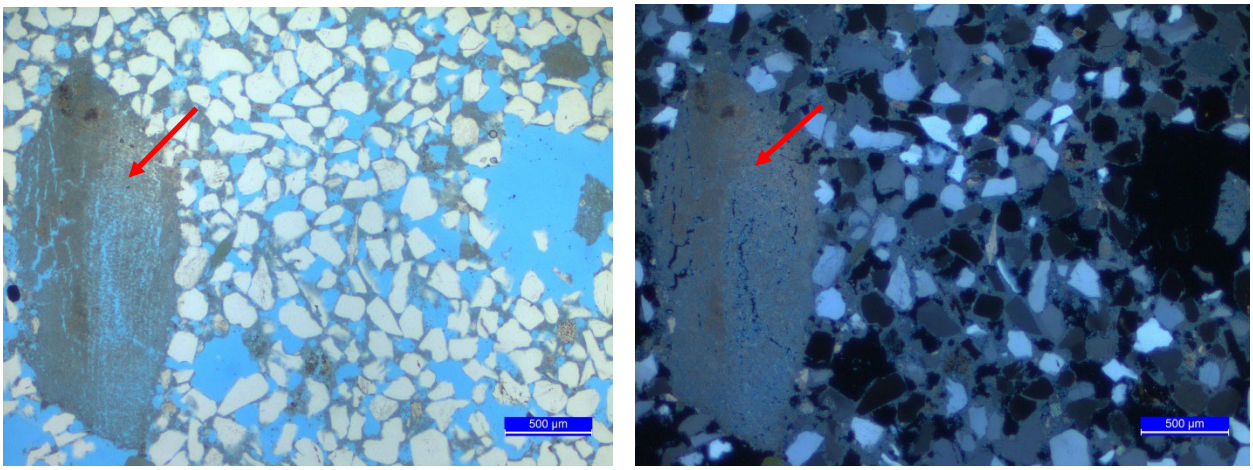


Figure 20. PPL (left) and XPL (right) images of Sample KPB-10 showing a large hydrated lime lump (red arrows).

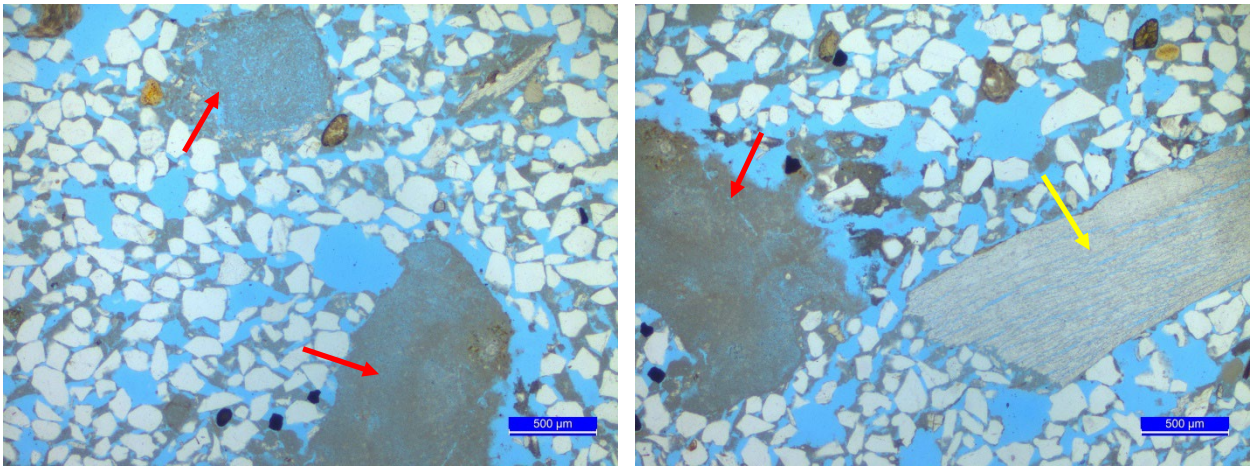
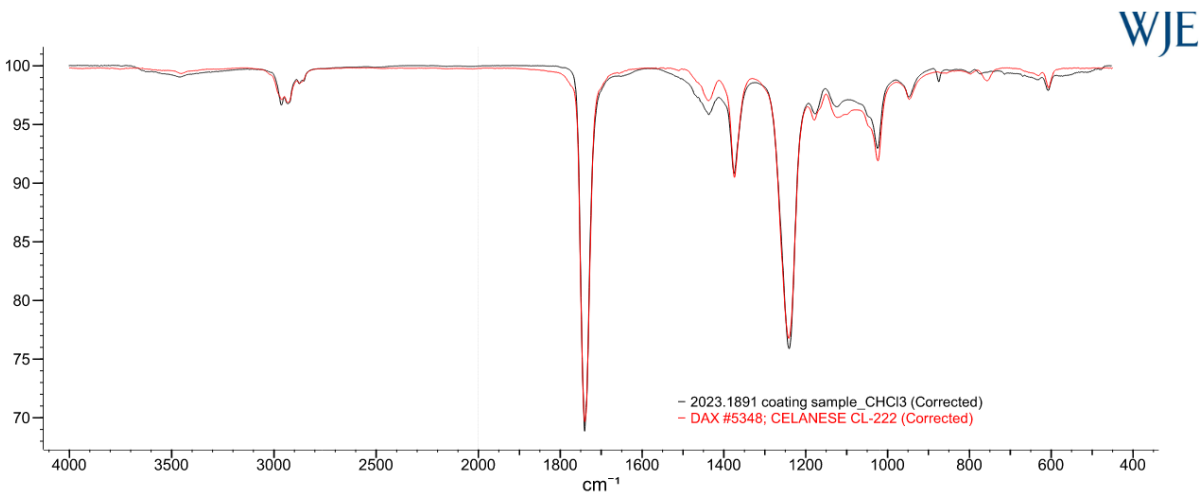


Figure 21. PPL images of Sample KPB-13, showing representative overviews of the paste. Red arrows point to hydrated lime lumps and yellow arrow points to a shell fragment. The white areas of the image represent quartz sand particles and the blue areas represent void space.



HQI	Tag	rrectio	DB	ID	Name	Spectrum
98.90			DAX	5348	CELANESE CL-222	

Name	Value
Name	CELANESE CL-222
Chemical Description	VINYL-ACRYLIC COPOLYMER EMULSION
Classification	POLYMERS - ACRYLIC COPOLYMERS

Figure 22. FTIR spectrum of chloroform extraction residue from coating sample (black line) and a library spectrum of vinyl acrylic copolymer (red line).

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