

Barn Complex
Carl Sandburg Home National Historic Site
Historic Structure Report



December 2014

for

Cultural Resources Division

Southeast Region, National Park Service

by

JOSEPH K. OPPERMAN – ARCHITECT, P.A.

539 N. Trade Street Winston-Salem, NC 27101

www.jkoa.net 336/721-1711

Barn Complex
Carl Sandburg Home National Historic Site
Historic Structure Report

December 2014

for

Cultural Resources Division
Southeast Region, National Park Service

by

JOSEPH K. OPPERMANN – ARCHITECT, P.A.

539 N. Trade Street Winston-Salem, NC 27101

www.jkoa.net 336/721-1711



Cultural Resources
Southeast Region
National Park Service
100 Alabama St. SW
Atlanta, GA 30303
(404) 507-5847

The historic structure report presented here exists in two formats. A traditional, printed version is available for study at the park, the Southeastern Regional Office of the NPS (SERO), and at a variety of other repositories. For more widespread access, the historic structure report also exists in a web-based format through ParkNet, the website of the National Park Service. Please visit www.nps.gov for more information.

2014
Historic Structure Report
Barn Complex
Carl Sandburg Home National Historic Site
Flat Rock, NC

Goat Barn: HS-16, LCS 005161, FMSS 69819
Milk House: HS-16A, LCS 005162, FMSS 69690
Horse Barn: HS-17, LCS 005163, FMSS 69863
Silo: HS-20, LCS 005166 (s-o-w gives no FMSS)
Shavings Shed: HS-19, LCS 005165, FMSS 69691
Cow Shed: HS-18, LCS 005164, FMSS 69697
Buck Kid Quarters: HS-15, LCS 005160, FMSS 69689
Corn Crib: HS-14, LCS 005159, FMSS 69698
Barn Garage: HS-13, LCS 005158, FMSS 69895
Isolation Quarters: HS-12, LCS 005157, FMSS 69817

Cover: The barnyard in 1956. (CARL 3003-2-3-1)

Barn Complex
Carl Sandburg Home National Historic Site
Flat Rock, NC
Historic Structure Report
2014

Approved by:


Superintendent, Carl Sandburg Home National Historic Site

14 Jan 2015
Date

Recommended by:


Chief, Cultural Resources Division, Southeast Region

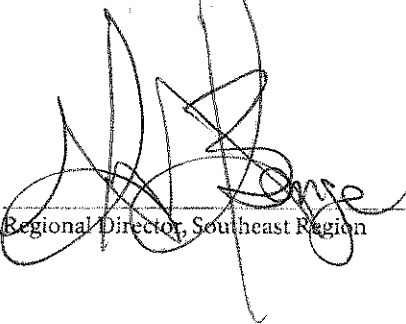
1/22/15
Date

Recommended by:


Deputy Regional Director, Southeast Region

1-27-15
Date

Approved by:


Regional Director, Southeast Region

1-27-15
Date

Table of Contents

Project Team.....	i
Management Summary	iii
Administrative Data	ix

Part I - Developmental History

A. Historical Background and Context.....	1
Settlement	
Flat Rock	
C. G. Memminger	
Mary and William Gregg	
Ellison Adger Smyth	
Connemara	
Lilian and Carl Sandburg	
Connemara	
The Move	
The Goat Operation	
Caretakers	
The Barns	
The 1960s	
National Park Service	
Return of the Goats	
Current Goat Program	
B. Chronology of Development and Use	21
The Buildings	26
Goat Barn (HS 16).....	26
Milk House (HS 16-A)	41
Horse Barn (HS 17).....	47
Silo (HS 20)	51
Shaving Shed (HS 19)	52
Cow Shed (HS 18).....	53
Buck Kid Quarters (HS 15).....	55
Corn Crib (HS 14).....	59
Barn Garage (HS 13)	62
Isolation Quarters (HS 12).....	65
C. Physical Description.....	67
General Description	67
The Site.....	67
The Barn Complex	67

The Primary Buildings of the Barn Complex	70
Goat Barn	70
The Milk House	112
The Secondary Buildings & Structures of the Barn Complex	127
Silo.....	127
Horse Barn	129
Shavings Shed.....	133
Cow Shed.....	135
Buck Kid Quarters.....	138
Corn Crib.....	143
Barn Garage.....	146
Isolation Quarters.....	150

Part II - Treatment & Use

A. Ultimate Treatment & Use	153
B. Requirements for Treatment.....	155

Bibliography	157
--------------------	-----

Appendix

A. Documentation Drawings: As-Found

Site Plan	A-1
Goat Barn - First Floor....	A-2
Goat Barn - Second Floor....	A-3
Milk House - First Floor... ..	A-4
Milk House - Second Floor....	A-5
Silo & Horse Barn - First Floor.....	A-6
Silo & Horse Barn - Second Floor....	A-7
Shavings Shed....	A-8
Corn Crib & Cow Shed....	A-9
Buck Kid Quarters - First & Second Floors....	A-10
Barn Garage....	A-11
Isolation Quarters - First & Second Floors....	A-12
Details.....	A-13

B. Finishes Analysis

C. Dendrochronology Report

Project Team

Building Investigation & Writing
Building Condition Assessment

Joseph K. Oppermann, FAIA, Historical Architect
Joseph K. Oppermann–Architect, P.A.
Winston-Salem, NC

Research and Writing

Langdon E. Oppermann, Architectural Historian
Joseph K. Oppermann–Architect, P.A.
Winston-Salem, NC

Building Recordation

Joseph K. Oppermann, FAIA, Historical Architect
Rebecca L. McCormick, AIA
Joseph K. Oppermann–Architect, P.A.
Winston-Salem, NC

Project Manager

Danita M. Brown, AIA, Historical Architect
National Park Service
Southeast Regional Office
Atlanta, GA

Program Review

Jeri DeYoung, Chief of Resources and Facility Management
National Park Service
Carl Sandburg Home National Historic Site
Flat Rock, NC

Danita M. Brown, AIA, Historical Architect
National Park Service
Southeast Regional Office
Atlanta, GA

Management Summary

Purpose and Scope

The purpose of this Historic Structure Report (HSR) is to document the historic context, the development, uses, and current conditions of 10 buildings in the Barn Complex of the Carl Sandburg Home National Historic Site. The National Park Service will use this report to inform and guide the stewardship of these historic structures.

The scope of work prescribed for this HSR specifies that documentary research be limited to the park's records. However, additional information was gathered in oral histories collected from current and former employees of the park, non-intrusive building archaeology, paint analysis, and dendrochronology.

This report, which highlights the Goat Barn and Milk House, the two buildings that were at the center of Lillian Sandburg's goat operation, also addresses eight buildings that had ancillary functions. These secondary buildings include the Horse Barn, Silo, Shavings Shed, Cow Shed, Buck Kid Quarters, Corn Crib, Barn Garage, and Isolation Quarters.

The report is divided into two major segments, Part I: Developmental History and Part II: Treatment & Use. Part I is organized into three sections: Part IA, the historical background and context of the complex as a whole; Part IB, a chronology of development and use of each building; and Part IC, a physical description of each building, both exterior and interior. This last section includes a commentary on physical condition. Part II evaluates treatment options and concludes with an "ultimate recommended treatment." Appendix A – Documentation Drawings contains scaled as-found floor plans of each building plus selected architectural details of the Goat Barn and Milk House. Appendix B – Finishes Analysis focuses on the oldest buildings with the least clarity of finish history: the Goat

Barn, Horse Barn, Buck Kid Quarters, Corn Crib, and Isolation Barn. (Although somewhat removed from the Barn Complex per se, another building, the Buck House, is included in the finishes study because of its importance as one of the oldest buildings in the park and because it played a role in the goat farm activities.) Appendix C – Dendrochronology focuses on the same buildings as the Finish Analysis, again because of their age and importance.

Historical Overview

Christopher Gustavus Memminger (1803-1888) was a prominent Charleston attorney and South Carolina statesman. He was among the earliest Charlestonians who in the decades before the Civil War purchased lands in Flat Rock, North Carolina, to build summer residences to escape Lowcountry diseases. Memminger first bought property at the foot of Glassy Mountain in 1837 where he cleared the land for meadows and pastures, laid out a formal front avenue, planned landscape, and constructed his residence and a variety of outbuildings. He named his summer estate Rock Hill.

Memminger added an adjacent parcel in 1850; his barn complex there remains the location of the current barn complex. Memminger had many significant roles in development of the region, especially as president of the railroad that completed the line from Charleston to Flat Rock and Asheville. But he is most widely known as having been the Confederate Secretary of the Treasury. After the war, he continued to spend his summers at Rock Hill until his death in 1888.

Memminger's summer residency was followed by two more prominent Charleston families. Colonel William Gregg (1835-1895) was from a noted and wealthy textile family, and his wife, Mary, was the daughter of a successful Charleston merchant. They acquired the property in 1889 and updated

several buildings before William's death in 1895. Thereafter, his widow reportedly spent little time there. The scarcity of documentary sources leaves it unclear what improvements the Greggs made to the Barn Complex.

Ellison Adger Smyth (1847-1942) was a Charlestonian who moved to upstate South Carolina after the war and became a national figure in the textile industry. He purchased the estate from Mary Gregg in 1900, renaming it Connemara for the Ireland of his Adger ancestors. He made it his summer home and then his primary residence until his death. Documents identify numerous improvements to the landscape and the buildings, both domestic and agricultural.

The Smyth Barn Complex with its adjacent pastures was the major attribute that attracted the Sandburgs to Connemara in 1945. The numerous farm buildings of various sizes suited Mrs. Sandburg's dairy goat business. The agreeable climate was another. And the distant location from the main residence suited Mr. Sandburg's routine of sleeping during the day and working at night.

Today, the Barn Complex buildings are the most visited in the park with approximately 150,000 visitors per year. The Goat Barn and Buck Kid Quarters house a small goat herd that the park maintains to provide visitors with an understanding of Mrs. Sandburg's famous goat herd and operation of the farm. The Horse Barn is often used as a classroom for school groups. The Milk House is furnished with Mrs. Sandburg's dairy equipment and open to the public for self-guided tours. Farm equipment and vehicles are exhibited in the Barn Garage and half of the Shavings Shed. The other half of the Shavings Shed is used to store wood shavings for the Goat Barn floor.

Statement of Significance

The historic estate was the home of three persons nationally recognized in their fields of endeavor. Each constructed buildings and modified the landscape to suit tastes and needs, which together create the property now under the stewardship of the park. The designs are significant in their own right. However, it is recognized today for its association with the last of the three, Carl Sandburg.

The Carl Sandburg Home National Historic Site commemorates one of the country's greatest writers. He was the winner of a Pulitzer Prize in 1940 for his biography of Abraham Lincoln and yet another in 1951 for his poetry. Dubbed "the poet of the American people," Sandburg enjoyed some of his most productive years at Connemara his home in Flat Rock.

The Barn Complex was the realm of Lilian Sandburg, the wife whom Carl called Paula. She organized and oversaw all aspects of the goat operation. She was nationally acclaimed for her professional skills in raising goats, developing a breeding system that produced a world champion.

In the National Register Nomination for the estate, the buildings of the Barn Complex are noted for their significance as fine examples of vernacular agrarian architecture.

Cultural and Natural Resources Management

The park was established by an Act of Congress that was signed into law in 1968 by President Lyndon B. Johnson (PL 90-592).

The park's 2003 General Management Plan (GMP) states in part,

"The purpose of the Carl Sandburg Home National Historic Site is:

1. To carry out the legacy of Carl Sandburg's works and life for the benefit of future generations through preservation, interpretation, education and inspiration.
2. To preserve Carl Sandburg's last home, associated structures and landscape, original furnishings, personal belongings, and library."

Project Team and Methodology

The National Park Service contracted with Joseph K. Oppermann – Architect, P.A., to prepare this HSR. The firm's members for this project included Joseph K. Oppermann, FAIA, historical architect and principal-in-charge; Rebecca L. McCormick, AIA, assisting architect; and Langdon Edmunds Oppermann, architectural historian. This group interviewed sources for the oral histories, researched historical documents and photographs, investigated the buildings, assessed their physical conditions, documented the buildings with scaled

drawings and photographs, and authored this HSR. Dorothy Krotzer, architectural conservator of Building Conservation Associates, prepared the Paint Analysis. Michael Worthington of Oxford Tree-Ring Laboratory conducted the dendrochronology.

Jeri DeYoung, cultural resource manager for the park, provided general guidance and logistical assistance as well as editorial review. Miriam Farris, museum specialist, made available relevant documents from park files as well as providing editorial review. Tommy H. Jones, cultural resource specialist, and architect Danita Brown, AIA, both with the National Park Service's Southeast Regional Office, provided technical review and project oversight.

Methodology

The project research was based on a coordinated study of documents and building fabric. The park's extensive archives are especially well organized and were a valuable resource for research of the Smyth and Sandburg occupancies. Research in the archives was conducted for several days in August of 2011, followed by supplemental research elsewhere and study of both primary and secondary sources.

An initial multi-day visit to the site to prepare as-found drawings was also made in August of 2011. Follow-up visits were made in September and October. During these early visits, field drawings were prepared for each building using measurements compiled with manual measuring tape, carpenter ruler, digital camera, and digital recorder, a Leica Disto laser distance meter. From these detailed field drawings, digitized AutoCAD drawings of floor plans and selected architectural elements were prepared. The digitized floor plans became the base documents on which descriptive notes and assessed conditions were recorded during subsequent trips.

The multi-day assessments in April, May, and June of 2012 focused on itemizing architectural features and elements, and assessing their physical condition. A standard assessment methodology was used for the condition survey of each exterior feature and each interior room. Visual observation of surface conditions supplemented with a 20-power magnification loop and Protimeter

BLD 2000 moisture meter were the method and instruments of assessing building materials. In accordance with the NPS scope of work, no building system components were tested and no invasive methods of investigation were employed. Tape measure and digital cameras were used to record the size, design and location of components and conditions.

A pre-sampling inspection for dendrochronology was conducted in March of 2013. Sampling was conducted in November and was completed in May, 2014. Samples were then tested in the Oxford laboratories.

Sampling for paint analysis was conducted in August and September of 2014. Testing of samples was then performed in the laboratories of Building Conservation Associates, Inc.

Findings

In general, the buildings of the Barn Complex accurately portray their appearance at the time of the Sandburg occupancy.

The vernacular nature of many of the structures, together with the frequency of changes, the use of similar materials in different construction campaigns, and the use of salvaged building elements, make the dating of both initial construction and the changes especially challenging. Dating was further hindered by the non-destructive nature of the study, prohibiting the removal of fasteners as part of the investigation.

The discovery that the database for tree-ring dating is not sufficient for the Flat Rock region was a disappointment. Laboratory analysis of the Sandburg samples revealed that this section of the Blue Ridge Mountains has a unique microclimate causing tree growth unlike the patterns of surrounding areas where the tree-ring databases have been compiled. This newly-recognized lack of a database for this area makes tree-ring dating, and therefore dating of building components, impossible at this time.

However, it is heartening that the samples collected from the barns by the dendrochronologists are stored and accessible. Those samples can be retested when a tree-ring database is compiled for the Flat Rock area by the scientific community.

The documentary research confirmed that eight buildings were present when the Sandburgs purchased the property. Investigation of the building construction techniques concluded that several were constructed prior to Smyth's arrival. Both the Isolation Barn and the Buck Kid Quarters appear to have been built in the late-nineteenth century, dating to Gregg or possibly Memminger. A nearby residence, the Buck House, which is somewhat removed from the Barn Complex but had a function with the goat operation, is also being investigated in a separate project. It is also early and likely dates to Memminger.

The research for this report also clarifies the histories of usage of all 10 buildings. When the Sandburgs acquired Connemara in 1945, the complex included a Cattle Barn, Horse Barn, Silo, Turkey House, Corn Crib, Corn Barn, Automobile Garage, and Sheep Barn. Mrs. Sandburg created a nucleus of two principal buildings for her famous prize-winning goat business: she remodeled the Cattle Barn for housing, feeding, and milking of her goats. And she constructed an adjacent Milk House for the bottling operation.

The Horse Barn, after significant alterations, and the Corn Crib continued their previous uses. Four buildings took on new uses; some were modified for the new purpose. The Turkey House was used as a horse stable and a shed was added to the back for the milking of cows: the building became known as the Cow Shed. The early Corn Barn underwent major alterations and became the Buck Kid Quarters to house the notoriously rambunctious young males. The Automobile Garage became the Barn Garage for farm vehicles and equipment when the cars were moved to a more convenient location. The Sheep Barn became the Isolation Barn housing sick goats. The Silo fell into disuse. The Shavings Shed was constructed to house the wood shavings needed to cover the floors of rooms holding goats.

The report clarifies the history of changes to each building.

The Memmingers, Greggs, and Smyths had the desire and financial means to have full-time as well as seasonal staffs, including a crew to maintain the estate. The buildings give evidence of skillful work executed using superior materials. Smyth's Garage,

though later altered by the Sandburgs, exhibits more expensive detailing (mitered joints), building material (German siding), and high style flourishes (ornate molded window hood and casings). In contrast, the Sandburg construction work typically exhibits a lesser skill level and materials of varying quality. In addition, consistency of style appears to have been of secondary importance to availability. Odds and ends are often incorporated into the Sandburg work. Architectural elements such as doors and window sash were often recycled from other buildings of the estate and from their Michigan farm.

The work performed by NPS often involves materials of disappointingly poor quality; painting often appears to lack proper prep work. Both create more frequent maintenance needs.

Sandburg painted the exteriors of all the buildings of the Barn Complex a red, except the Garage which retained its white color. Documentary research confirmed the brand, type, and color name of the paint. The paint analysis conducted for this report identified the paint color by the Standardized Munsell Color System with a current-day paint company (Benjamin Moore) color match. Though not tested, fragmentary remnants of whitewash remain on the interiors of the three rooms of the original section of the Goat Barn.

The report also addresses the physical condition of each building. The most serious threat identified was consistently a failure in the protective exterior envelope.

And finally, it was noted during our site visits that this park enjoys a high level of support from the community. We were often on site early before the park opened or late after normal hours. The local citizenry use the park then, too, and invariably we were approached and questioned about our activities. The questions were always respectful but also with a protective tone. Staff informed us that they could not remember an incidence of vandalism. That speaks volumes about the effectiveness of the park's outreach programs.

Recommended Treatment

As established by Congress and reiterated in the park's GMP, the purpose of this historic site is

to preserve the legacy of Carl Sandburg. The park is appropriately addressing the Sandburg-era historic cultural resources of the Barn Complex. Continued Preservation is the Ultimate Recommended Treatment.

Additional Recommendations

High priority should be given to collecting oral histories with persons familiar with the Barn Complex during the Sandburg era. This work should be conducted quickly before the opportunity to enrich the knowledge base with firsthand accounts is lost.

To better manage the historic buildings, it is highly recommended that additional digital record drawings be made of each building of the Barn Complex to include exterior elevations, roof plan, and foundation plan to supplement the floor plans prepared for this HSR.

It would be prudent to comprehensively record the historic paints and finishes of all the buildings from the Sandburg era, inside and out. The longer the delay, the more difficult will be the task of accurately recording the data.

Dendrochronology is an invaluable dating tool. Sampling is complete for the buildings of the Barn Complex. However, the current lack of comparative data, discovered during analysis for this report, thwarts its use. The possibility for reassessing the data should be revisited periodically.

Consideration should be given to opening additional portions of the Barn Complex buildings in order to expand interpretation to include other aspects of the goat-rearing operation. Likely candidates include the Baby Goat Feeding Room and Side Stall area of the Goat Barn.

Consideration should also be given to expanding the scope of sites interpreted to include outlying structures.

And, in light of the recent research, consideration should be given to presenting to visitors the long history of the site as a barn complex. While today the barns accurately reflect the complex as fashioned by Sandburg, the earlier structures have a rich history to tell as well. In fact the earlier buildings played a prominent role in bringing the Sandburgs to Connemara.

Administrative Data

Locational Data

<i>Building Name:</i>	Barn Complex
<i>Location:</i>	Carl Sandburg Home National Historic Site
<i>County:</i>	Henderson County
<i>State:</i>	North Carolina

Related NPS Studies

Carroll, Maureen A., Lucy Lawliss, and Steven H. Moffson. Additional Documentation and Amendment, National Register Registration Form, Carl Sandburg Home National Historic Site, 9 March 1995.

Hart, Susan. *Carl Sandburg Home National Historic Site Cultural Landscape Report*. Atlanta, GA: NPS-SERO, Division of Cultural Resources, 1993

Jones, Tommy. *Carl Sandburg Home National Historic Site: Connemara Main House Historic Structure Report*. National Park Service, 2005.

Jones, Tommy. *Carl Sandburg Home National Historic Site: The Swedish House Historic Structure Report*. National Park Service, 2005.

National Park Service. CARL Visitor Study, Spring 2008, Park Studies Unit, Visitor Services Project, Report 201, December 2008.

Oppermann, Joseph K. *Carl Sandburg Home National Historic Site: The Chicken House/Wash House Historic Structure Report*. National Park Service, 2007.

Pence, Heather Russo. *Carl Sandburg Home National Historic Site: Archeological Overview and Assessment*. Tallahassee, FL: Southeast Archeological Center/National Park Service, 1998.

Wallace, David H. *Historic Furnishings Report, Main House and Swedish House at Carl Sandburg Home National Historic Site, Flat Rock, North Carolina*. Frederick, MD: NP, 1984.

Carl Sandburg Home archives.

Real Property Information

Acquisition Date: 1967

Numbering Information

LCS ID: Goat Barn: HS-16, LCS 005161, FMSS 69819
Milk House: HS-16A, LCS 005162, FMSS 69690
Horse Barn: HS-17, LCS 005163, FMSS 69863
Silo: HS-20, LCS 005166 (s-o-w gives no FMSS)
Shavings Shed: HS-19, LCS 005165, FMSS 69691
Cow Shed: HS-18, LCS 005164, FMSS 69697
Buck Kid Quarters: HS-15, LCS 005160, FMSS 69689
Corn Crib: HS-14, LCS 005159, FMSS 69698
Barn Garage: HS-13, LCS 005158, FMSS 69895
Isolation Quarters, or Isolation Shed: HS-12, LCS 005157, FMSS 69817

Size Information

Primary Structures:

Goat Barn

Total Floor Area: 5,370 square feet ±
Roof Area: 4,400 square feet ±
Number of Stories: 2
Number of Rooms: 10
Number of Bathrooms: 0

Milk House

Total Floor Area: 590 square feet ±
Roof Area: 480 square feet ±
Number of Stories: 2
Number of Rooms: 5
Number of Bathrooms: 1

Secondary Structures:

Horse Barn

Total Floor Area: 1,225 square feet ±
Number of Stories: 2

Silo

Total Floor Area: 140 square feet ±
Number of Stories: 1

Shaving Shed

Total Floor Area: 740 square feet ±
Number of Stories: 1

Cow Shed

Total Floor Area: 270 square feet ±
Number of Stories: 1

Buck Kid Quarters
Total Floor Area: 330 square feet ±
Number of Stories: 1

Corn Crib
Total Floor Area: 70 square feet ±
Number of Stories: 1

Barn Garage
Total Floor Area: 870 square feet ±
Number of Stories: 1

Isolation Quarters
Total Floor Area: 390 square feet ±
Number of Stories: 2

Cultural Resource Data

National Register Status: Name: Carl Sandburg Home National Historic Site
Contributing structures
October 17, 1968: Listed upon acquisition
January 20, 1978: Documentation Accepted
March 9, 1995: Additional Documentation and Amendment

Proposed Treatment Preservation

I.A Historical Background and Context

The barn complex at Connemara, the Carl Sandburg Home, was part of a property developed as a summer estate in the fast-growing summer community of Flat Rock. The house was built as “Rock Hill” in 1838-39 by Charlestonian C.G. Memminger, sold in 1889 to another Charlestonian, William Gregg, then sold in 1900 to textile industrialist Ellison A. Smyth, who changed the name to Connemara, and like others used it as a summer place until moving there year-round in 1925.

In 1945, Lilian and Carl Sandburg bought the property for their family, his work, and her significant goat breeding program. The barn complex was a pivotal component of their decision.

The National Park Service took over the property in 1967 after Carl Sandburg’s death, and maintains a small herd, descendants of Mrs. Sandburg’s goats, as part of its interpretation for visitors.

Although many extant buildings are associated with the Sandburg goat operation, this report focuses on the ten central buildings surrounding the barnyard. The first chapter, Part IA, discusses the context and people of Connemara. Part IB examines the history and changes to each building. IC describes the current physical appearance of the buildings, and Part II suggests alternate and recommended approaches for the future of the complex.

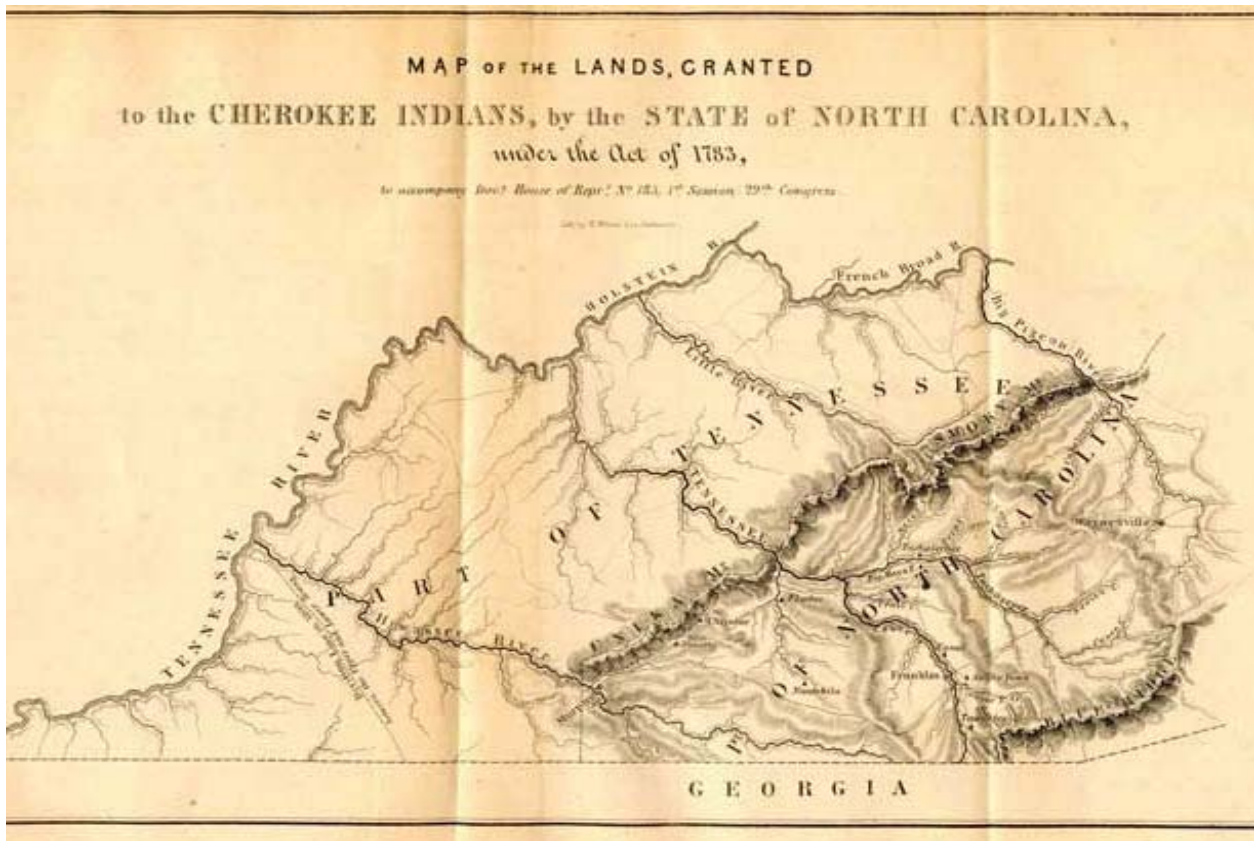


Figure 1. Cherokee Lands ceded to North Carolina under the Act of 1783. Published 1846.

Settlement

At the start of the eighteenth century, Cherokee lands covered a vast area reaching from Virginia to Alabama. A series of treaties with British, colonial, and state governments resulted in the loss of all their territory. In western North Carolina, ceded lands were opened to white settlement under a 1785 treaty, and land grants began in 1787, the earliest near Flat Rock.

In stark contrast, rice cultivation had already created vast fortunes for South Carolina planters and transformed the Lowcountry into one of the most influential regions in the nation. Seven million acres were under cultivation with extensive waterworks creating flooded fields.

But the lucrative fields had their cost. The standing pools of stagnant water were ideal breeding grounds for mosquitoes that carried malaria, yellow fever, dengue. The swamps were called the “source of infinite wealth,” but at the same time came the gruesome warning that “the corrosive vapours of these stagnant waters. . . become prejudicial to health by cloaking the stomachs of the inhabitants with slime, and corrupt their blood.”¹

The planters’ very success banished them from its source in a progression to Flat Rock. Each spring saw the exodus of whole households from the plantations to townhouses in Charleston and to the pinelands of South Carolina, other states, even Europe. Families moved upriver, giving the names



Figure 2. Rice fields of standing water at Mulberry Plantation. (Frances Benjamin Johnston, LOC call No. LC-J7-SC-1521)

1. John G.W. De Braham, *Report of the General Survey in the Southern District of North America*, ed. by Louis De Vorse, Jr. (reprint, Columbia: University of South Carolina Press, 1971), p. 79.

Plantersville, Summerville, Summerton, and Pinopolis to summer communities. The flight from disease was so prevalent that Newport, Rhode Island was nicknamed ‘The Carolina Hospital.’² With death and sickness a constant presence, the search for healthy environs would lead to Flat Rock and to Connemara.

Flat Rock

Five years after that first land grant in western North Carolina, Buncombe County was organized, and a road was soon “laid out and constructed. . . from the ford of Cane Creek to the flat rock near the blue ridge.” By 1795 the rudimentary State Road led from Georgia through Flat Rock to Tennessee, running close to Connemara and roughly corresponding to the current Greenville Highway. A small community began as “drovers’ roads” allowed farmers to transport goods and drovers to herd livestock to market. The 1827 completion of the Buncombe Turnpike from Charleston through Flat Rock opened the mountains to the wealthy South Carolina Lowcountry.

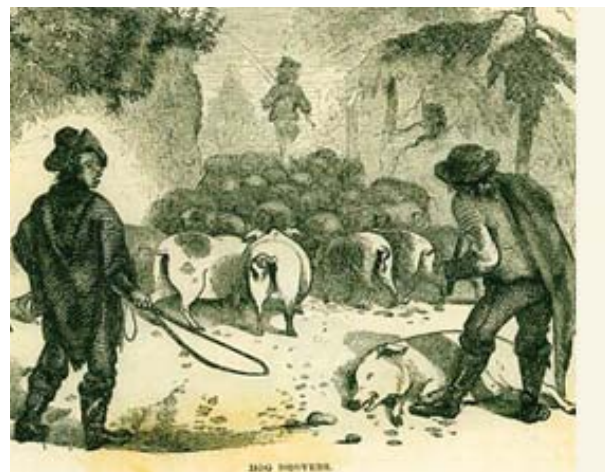


Figure 3. Hog drovers in western North Carolina. (*Harper's New Monthly Magazine*, October 1857)

Charleston for some years had sought direct trade with today’s Midwest as a means to become the most important Atlantic seaport. Explorations were made to identify routes for a railroad over the Blue Ridge to the Ohio Valley. Prominent men of Charleston became active in rail companies and personally examined possible routes. In 1827, the same year the Buncombe Turnpike reached

2. Carl Bridenbaugh, “Charlestonians at Newport, 1767-1775,” *The South Carolina Historical and Genealogical Magazine*, vol. XLI, no. 2, April 1940, p. 43.

Asheville, the South Carolina Canal and Rail Road Company was chartered.³

The roads opened Flat Rock to development, but it was disease that sent the newcomers. Charleston planters Charles Baring, Daniel Blake and Judge Mitchell King had all visited the area while searching for rail routes, noted its healthy climate, and in 1827-29 bought large acreages.

This group is generally regarded as the founders of Flat Rock. It was not, however, unsettled land. Already here were subsistence farmers, several with names that remain in the community today, who helped build, furnish, and manage the properties.⁴

Word of this healthful summer climate generated rapid and excited development. Just as plantations were bound by family connections, so were the houses of Flat Rock. Baring sold acreage and houses to his friends and acquaintances. In less than a decade, about twenty of South Carolina's wealthiest families built summer places in Flat Rock. The railroad was delayed until after the Civil War, yet even while travel remained dependent on rough roads, coastal families made the long annual journey to Flat Rock.

Fine country places were established, often at some distance from the next. These were consciously landscaped and contained a main house for extended family and a host of outbuildings for seasonal servants and year-round caretaker, and for domestic and farm operations. Dependencies generally included kitchen, servants' houses, outhouses, spring house, laundry, vegetable house, ice house, cooling dairy, woodshed, caretaker's house, workers' houses, barns and other farm buildings, wells and cisterns, along with lawns, pastures, fences, woods, roads, and farm and domestic gardens.

Domestic staff were invariably enslaved black servants who worked for the families in Charleston and travelled to Flat Rock in the summer months. The year-round staff were local white residents, many from the long-time families of nearby communities.

3. Samuel Melancthon Derrick. *Centennial History of South Carolina Railroad* (Columbia: State Company. 1930), p. 128.

4. Interview with Hogan Corn, descendant of early settler Peter Corn and a family of stonecutters..



Figure 4. Springhouses were common outbuildings. This is the Memminger-era springhouse at Rock Hill, photographed ca. 1910. (CARL3001-03-01P)

During the winter the summer buildings were closed and the caretaker's family, other year-round workers, and animals kept the places going. Unlike the plantations that made Flat Rock possible, these mountain complexes, though comprehensive, were not designed for profit.

Flat Rock can accurately be called a unique community in North Carolina. These summer properties did not grow from the culture of their adopted region. They were alien not only in their imported designs, but socially, economically, and geographically. And Flat Rock is unlike North Carolina's other mountain summer communities in its unplanned physical configuration, its early date, the causes of settlement and the grandeur of its imported architecture. In contrast, the farm outbuildings owe their designs more to regional vernacular construction traditions.

The Owners

People throughout history have kept records of individuals and activities thought important at the time. Documents available to researchers reflect those values. As a result, there is far more documentation of the life and work of the more prominent than of less wealthy workers and their contributions. In this report we have strived to find and report information on the caretakers, carpenters and others who worked on the farm buildings. Most is found in Part IB.

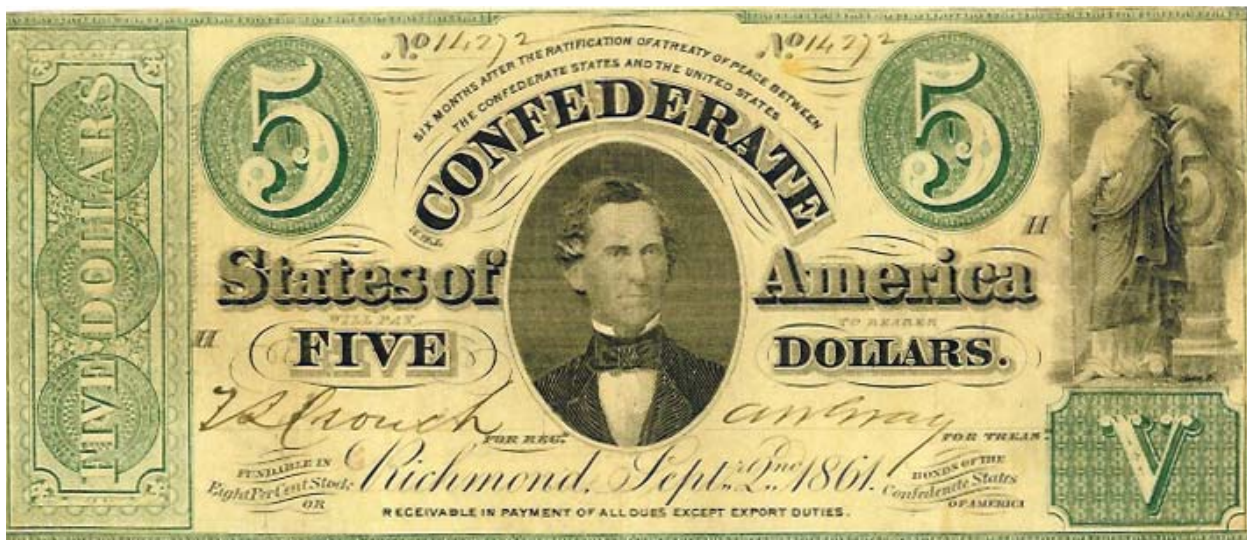


Figure 5. Memminger pictured on Confederate \$5 bill, 1861. (North Carolina Division of Archives and History)

C. G. Memminger

Christopher Gustavus Memminger (1803-1888) was a Charlestonian and South Carolina statesman. He first visited Flat Rock in 1836 and bought his land the next year, a decade after the first group arrived and decades before he was named Secretary of the Treasury of the Confederate States of America. To his mind the best sites were taken:

Of course, the first comers had the best sites for residences.... Nevertheless after much cruising I at last found a place that would suit very well and authorized the Count [de Choiseul] to purchase it if it could be had, on Mr. Baring tendering to let me have some of his contiguous land and the use of a spring from an elevation of his land.⁵

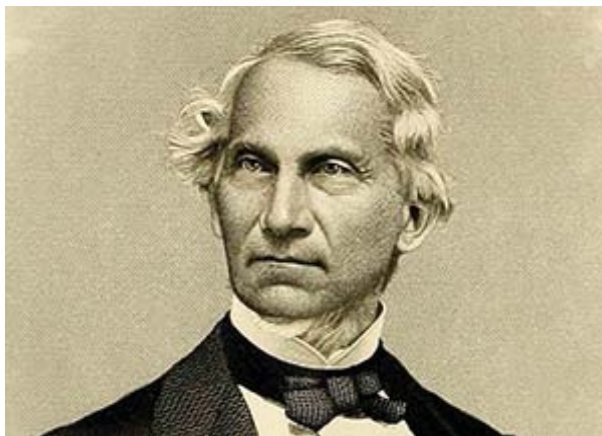


Figure 6. C.G. Memminger, who built Rock Hill; 1880 engraving. (Henry D. Capers, *The Life and Times of C.G. Memminger*, 1893)

5. Patton, *Flat Rock*, p. 39.

Memminger's land was at the foot of Glassy Mountain. He established the layout and major landscape features of the place he named Rock Hill, clearing meadows and pastures, building a formal front avenue, outbuildings for domestic and farm use, and placing the house on the crest of a hill overlooking a man-made lake.

In 1850 Memminger bought additional land from A. S. Willington, including the spring on Glassy Mountain and the "stable lot." He had been using the spring, but whether he developed the stable lot before 1850 is not known. The stable lot is the location of the barn complex used by the Sandburgs.

The same year, he improved access to his property and to others when he opened Little River Road with Andrew Johnstone, whose summer place also bordered the road. The road replaced and perhaps paralleled an 1816 road or path, Crab Tree Creek Road.⁶

A biography published after Memminger's death presents a luminous description of his Rock Hill:

"Rock Hill" must be seen by the appreciative to be enjoyed in all of the loveliness of its many attractive features. Its lake of pure water, its green sward, its beautiful hills and grand forest trees, among which graveled walks and carriage

6. Edward Read Memminger, *An Historical Sketch of Flat Rock*, written 1922, privately published 1954 by Marjorie Memminger Norment (E.R. Memminger was C.G.'s son; Norment was E.R.'s daughter), Asheville: Stephens Press, pp. 7, 14.

drives led up to the seat of a noble hospitality, to a home where all that a refined taste and a cultured mind could gather of adornment or secure of comfort. Such was "Rock Hill," an earthly Paradise to Mr. Memminger, a sweet retreat from all the clamor and clatter of the world.⁷

Memminger's landscape design, with additions and alterations by subsequent owners, remains the configuration of the Sandburg Home.

Like other Flat Rock residents, Memminger was prominent. A lawyer with a long career in state politics, he was a strong advocate for education for the white working classes, and in the 1850s helped reform the public schools throughout the state to create one of the leading school systems in the United States. During the Civil War, he was selected as Secretary of the Treasury of the Confederacy.⁸

In 1864, Memminger retreated to Rock Hill and remained there through the winter and until after the war. Because deserters and "bushwhackers" were ambushing families and pillaging houses, Memminger created a sort of fortress of his Rock Hill. His son Edward recalled that the front steps were pulled down, port-holes were cut in doors, and windows were barricaded with sandbags. Many families, especially women, had moved to Flat Rock for safety during the war; they went to Rock Hill when bushwhackers threatened.⁹

After the war and a long legal battle, Memminger in 1867 recovered his seized Charleston property from the Union. He returned to his law practice and resumed his efforts on behalf of the South Carolina school systems for both races, as well as helping to develop the phosphate industry in South Carolina. And he was president of the railroad company that completed the line to Flat Rock and on to Asheville.¹⁰

7. Henry Dickson Capers, *The Life and Times of C.G. Memminger* (Richmond, Virginia: the Everett Waddey Company, 1893), p. 871.

8. In 1832 he married Mary Withers Wilkinson (1812-1875). South Carolina Historical Collection 00502, "C.G. Memminger Papers, 1803-1915," Collection Overview. James Grant Wilson and John Fiske, eds. "Memminger, Charles Gustavus," in *Appletons' Cyclopædia of American Biography* (New York: D. Appleton, 1900).

9. William R. Trotter, *Bushwhackers, the Civil War in North Carolina, vol. II, The Mountains*. (John F. Blair, publisher, 1988), p. 175. E.R. Memminger, *Historical Sketch*, p. 14.

10. Memminger papers.

He remarried after his wife's 1875 death, and continued to spend summers at Rock Hill until his death in 1888.

Mary and William Gregg

Rock Hill was sold in 1889 by Memminger's son and executor, Edward, to Mary A. Fleming Gregg, who acquired 292 acres and the contents of Rock Hill for \$10,000 on September 12, 1889.¹¹ Her husband, Colonel William Gregg, Jr. (1835-1895), was from a successful textile family, while she was the daughter of a wealthy Charleston merchant. The Greggs helped shape Rock Hill.



Figure 7. William Gregg, Sr., textile industrialist and father of Colonel William Gregg. (www.s9.com/Biography/Gregg-William)

Though little is known about Colonel Gregg, his father William Gregg has been called the most significant figure in the development of textile manufacturing in the South. He and his wife Marina had several children, among them James Jones Gregg who took over textile operations after the 1867 death of his father. James's brother, Colonel William Jacob Gregg, who would buy Rock Hill, was less successful, with sparse mention in historical records.¹²

Colonel Gregg appears to have owned two phosphate mines in the Lowcountry, but had no involvement in the textile industry.

11. Deed book 25/469; purchased in trust by her brother-in-law Casper A. Chisholm. Memminger may have made arrangements for sale to the Gregg family in 1865 with a deed to James John Gregg, son of William Sr. The 1889 deed references both her brother-in-law James Jones Gregg and her father Daniel Fleming as earlier trustees.

12. "William Gregg and Marina Jones Gregg," <http://anygreenplace.com/greggjones.html>. Gravestone at Magnolia Cemetery, www.findagrave.com. The Colonel is also referred to in contemporary records as William Gregg, Jr.

Gregg died on February 8, 1895 after spending only five summers at Rock Hill. His wife Mary Fleming Gregg spent little or no time in Flat Rock after her husband's death. As a result, and reflecting a lack of documentation on these less successful Greggs, secondary sources generally report that they neither used nor improved the house.¹³ However, the Greggs apparently made several significant changes. New porches, bay windows, and mantelpieces are among alterations made to the house, possibly by Memminger in the 1880s, but far more likely by the Greggs after their 1889 purchase.¹⁴ It is doubtful that Memminger, then in his eighties, would have made additions to the house, and his children built their own houses in Flat Rock.

It is possible that the Greggs also improved domestic dependencies and the farm complex. Stabling for horses and farm animals was necessary, as were other farm buildings to meet the summer needs of the Greggs and the year-round needs of the Slattery family and other workers.

William Slattery (1861-1943) was caretaker during the Greggs' ownership, and may have been at Rock Hill under Memminger, though probably not as caretaker. Slattery, was the son of Nicholas and Mary Ann Hollingsworth Slattery and apparently grew up near Rock Hill. He married Martha Jane Louise Stepp (1864-1932).¹⁵

Ellison Adger Smyth

Late in 1900, Mary Gregg sold Rock Hill to Ellison Adger Smyth (1847-1942), a Charlestonian who moved to upstate South Carolina and became a pioneer in the textile industry. The families were acquainted; Mary Gregg may have approached Captain Smyth about the sale.¹⁶ As the third owners, the Smyths also had a significant impact on the property. They renamed the estate Connemara for the Ireland of his Adger ancestors, expanded the acreage, added buildings, and further

13. For example, Louise Howe Bailey, *From 'Rock Hill' to 'Connemara,' the Story before Carl Sandburg* (Eastern National Park & Monument Association, 1980; 1992 printing), p. 32.

14. Jones, *Main House HSR*, p. 34.

15. Both are buried at Mud Creek Baptist cemetery in Flat Rock. Henderson County Death Certificate. <http://www.findagrave.com/cgi-bin/fg.cgi?page=gsr&GSIn=Slattery&GSi man=1&GSst=29&>. Jones, *Main House HSR*, p. 35.

16. Purchase was made in trust for Ellison Smyth on December 12, 1900 by his brothers. Jones, *Main House HSR*, p. 34.



Figure 8. Bridge at Connemara, photographed 1910-1915. (<http://georgiaphotographers.wordpress.com/>)

developed Memminger's landscape. He built most of the extant buildings in the barn complex, added stone walls, fences, a reservoir, lake, and additional ponds. Smyth entered the South's fledgling textile manufacturing industry in 1880. He was heavily influenced by William Gregg, Sr. who so strongly urged the establishment of cotton mills in the South.

Smyth's first mill was followed by additional mills every few years, each with new innovations. His company boasted the largest cotton mills in the world.¹⁷



Figure 9. Ellison Smyth at age 42. (Jacobs, *The Pioneer*, p. 24)

17. "Captain Ellison Adger Smyth," <http://www.textilehistory.org/EllisonAdgerSmyth.html>. <http://pelzerinsulators.com/pelzercompanies.htm>

Smyth improved the conditions of mill workers, adding schools, churches, stores, a library, theater, and park at his Pelzer mill. The village did in fact become a ‘model mill town,’ on which other cotton mill owners based their mill villages. He set up a system to prevent child labor, and encouraged his workers to send their children to school. He reported: “you will see how anxiously we work to encourage the children of our employees to attend school... If we had compulsory attendance school laws it would help us very much.” In 1901 he was appointed to the United States Industrial Commission.¹⁸

In 1923 as the Smyths planned their move to Connemara as a year-round residence, he sold his South Carolina mills and developed Balfour Mills and mill village near Hendersonville. The village included an unusually large library. Smyth was 78. He expected his son to direct the company; however, after his son’s death in 1928 he actively managed Balfour.

Ellison Smyth died at Connemara on August 3, 1942 a few months short of his 95th birthday. His Spartanburg obituary noted that “until within the last year he still went to his office at the Balfour Mills.” The New York Times recognized him as the “dean of Southern textile manufacturers.”

Connemara

Smyth was 53 in 1900 when he purchased Connemara, an active grandfather to his many grandchildren. Photographs of the children in the barnyard provide much of our information on the purpose of the buildings and changes made to them over the years, described in the next section of this report.

Family interviews indicate that Smyth was closely involved with the farm operations. Connemara was shaped by his insistence on a rigorous maintenance schedule, which was met by a large staff, full-time for the grounds and buildings, and seasonal for domestic staff. He and his wife continued the Flat Rock pattern of bringing domestic help with them while hiring local

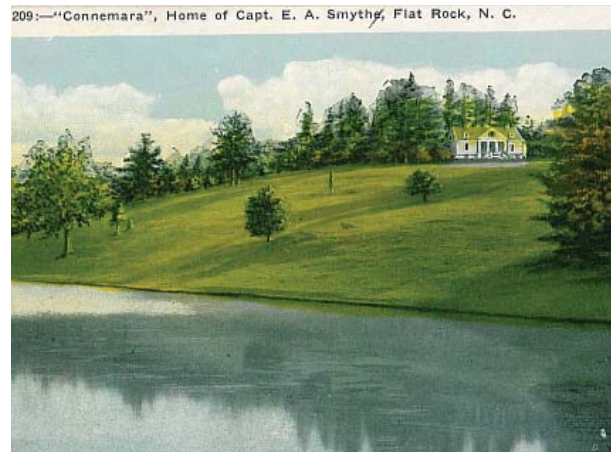


Figure 10. Postcard showing Connemara during Smyth ownership. (Personal collection)



Figure 11. The Smyths’ servants in front of the kitchen building, ca. 1910. (Collection of Smyth great-grandson William McKay)

workers year-round. Domestic employees were black, local workers white, each reflecting the population of their region. A small number of photographs of these employees are among family documents.

The job of caretaker and the caretaker’s relationship with the owner were crucial to Flat Rock’s summer places. When Smyth arrived at Rock Hill, William Slattery, who had been caretaker for Gregg, remained. Smyth “ran a tight ship,” and Slattery was either fired or left of his own accord. He was replaced in around 1912 by his assistant Ulysses Ballard.

Ulysses Franklin Ballard (1886-1954 or 1955) and his wife Emily Jane Osteen Ballard (1890-1988) were born in Mt. Olive, he the son of John Franklin Ballard and Falba Capps Ballard. Ulysses apparently ran a grocery store before working

18. “Report of State Officers, Board and Committees to the General Assembly of South Carolina, 1901.” Jones, *Main House HSR*, p. 33.



Figure 12. Ulysses Ballard with Guernsey bull. (CARL3002-12-6P)

at Connemara. He married Emily in 1909 and they spent the majority of their married years as caretakers for the Smyths at Connemara, raising five children there. Smyth built a new caretaker's house in 1912; the Ballards were probably the first occupants.

Smyth and Ballard got along well, and Smyth's granddaughter in interviews remembered Ballard as a "splendid caretaker." He was caretaker for about forty years, remaining after Smyth's death and for several months after the Sandburgs' arrival.¹⁹

Smyth brought animals to Connemara, among them sheep, oxen, hogs, horses, cows, and his many fowl, including chickens, guinea, ducks, and turkeys. His granddaughters remembered that he visited the barnyard daily and took responsibility for feeding the fowl each afternoon. A 1937 visitor recounted, "Strolling about under the trees I



Figure 13. Oxen at work at Connemara. (CARL3002-12-7P)

counted fifty fat brown turkeys, and wished I could come back for Thanksgiving Day."²⁰

The farm animals were also remembered by Smyth's granddaughter Mary Smyth McKay as she tells of her "Story Book Summers" at Connemara:


Through the years my grandfather had sheep. They grazed on the lawn which was fenced off from the yard surrounding the house, and reached down to the lake. In the afternoon they found their way back to the barn for supper and a place of safety for the night. Lambs supplied meat for the table during the summer as did chickens and ducks raised on the place. Several milk cows gave us all the milk we could drink, and the wife of the caretaker churned, and there was always fresh butter. The caretaker was given written instructions as to what to plant – flowers as well as vegetables.²¹

After the Smyths moved to Connemara permanently in 1925, he began to breed prize Guernsey cattle, keeping three or four bulls and about twenty dairy cows who were under Ballard's

19. He is buried in Oakdale Cemetery. After his death, Emily moved to Gadsden, Alabama, to live with her daughter; "Family tree maker," familytreemaker.genealogy.com/users/l/i/n/Thelma-E-Lindsey-NC/GENE1-0030.html. Jones, *Main House HSR*, p. 35. Tommy Jones, *Connemara Swedish House HSR* (Atlanta: National Park Service, 2005), p. 21. Bailey 'Rock Hill' to 'Connemara,' p. 44.

20. E.T.H. Shaffer, *Carolina Gardens* (New York: The Devin-Adair Company, 1937, 3rd ed. 1963), p. 273.

21. Mary Smyth McKay, "Story Book Summers at Connemara Farm," *The State*, August 1973, p. 22.




**“No ordinary milk
ever tasted like this!”**

EVEN milk-shy men and finicky children actually *like* to drink lots of Golden Guernsey Milk. It's different in taste—creamier, fuller-bodied. Never weak or watery. Different in looks—rich yellow in color, even below the cream-line!

Golden Guernsey Milk is produced exclusively by Guernsey cattle. Never mixed or blended with other milks. Never varies in its wealth of health-value. It is rich in all the nutrient elements—lime, iron, vitamins—and averages 30% more butter-fat than ordinary market milk. Treat your family to the benefits of Golden Guernsey. It costs but a few cents more.

You can distinguish Golden Guernsey by its rich color, and by the Golden Guernsey trade-mark on the bottle-cap. If your

milkman can't supply you, write for the name of the nearest dealer. Ask for the free booklet, *“How to Buy Milk More Wisely.”* Golden Guernsey, Inc., 111 Grove Street, Peterboro, New Hampshire.



AMERICA'S TABLE MILK

Figure 14. *Good Housekeeping* magazine's 1934 advertisement for Golden Guernsey Milk. (December 1934, p. 203 <http://gogd.tjs-labs.com/pictures/milk-good-12-01-1934-203-M3.jpg>)

care. Ballard prided himself on the herd and the scrupulous management of the farm that Smyth promoted. Ballard also worked oxen for cutting hay, plowing the fields and gardens, scraping roads, and dragging the ponds.

Mary McKay remembered the popularity of the Guernsey milk, light golden in color. “About that time Golden Guernsey Milk was the thing. He had a cow which made some record in production of butter fat, and one of their daughters, Cricket of Connemara, brought a great sum at a sale in 1946.”

After Smyth's 1942 death, the house remained vacant for three years until the end of World War II, when it was sold to Carl and Lilian Sandburg.

Lilian and Carl Sandburg

Because Carl Sandburg's literary career has been extensively documented, only a brief summary is warranted in this report, which is specific to the barns. The barn complex and operations were the work of Mrs. Sandburg; he had little involvement.

The Sandburgs were unlike most owners of the Flat Rock properties built for summer use. In the mid-twentieth century, the great majority were from the South Carolina Lowcountry or descendants of Lowcountry families, much in contrast to the Sandburgs, who came from Chicago and Michigan to focus on their work rather than on relaxation, and had little reason to develop social relationships with the summer residents.



Figure 15. Lilian Steichen Sandburg, 1910. Autochrome by her brother Edward Steichen. (CARL 13001)

Carl Sandburg and Lilian Steichen (1883-1977) met in December 1907 at a meeting of the Wisconsin Social-Democratic party. Carl worked as secretary to the first Socialist mayor of Milwaukee, and Lilian came to the meeting from Illinois.²² The couple corresponded, she while in Princeton, Illinois, and married in Milwaukee six months later after meeting only twice more. Carl called her Paula. Often overshadowed by Carl, she was an accomplished woman herself, already a Phi Beta Kappa graduate of the University of Chicago, working as a teacher. Her brother was the internationally acclaimed photographer Edward Steichen; the family's many photographs of their life and work at Connemara no doubt came from an easy familiarity with cameras.²³

The couple had their first daughter in Milwaukee before moving in 1912 to Chicago, where Carl worked on the staff of the socialist *Chicago Evening World* and other journals.²⁴ Publication of his poems in 1916 launched his career, and in 1926, his two volumes of Lincoln's life distinguished him as a biographer.

The Sandburgs rented a cottage that summer near Sawyer, Michigan. The next year, with Carl's earnings from the first Lincoln books, they bought the cottage, and in 1928 bought property in Harbert, Michigan on a sandy bluff overlooking Lake Michigan. There they built a house, designed

by Paula for Carl's work habits, for storage of his many papers, and for their daughters.²⁵

By then the family included their three daughters, Margaret, 17, Janet, 12, and Helga, the youngest at 10. Margaret suffered from serious epilepsy, uncontrolled despite treatment at numerous clinics. Janet was called a slow learner, and an accident in her mid-teens exacerbated her condition. Carl Sandburg worked long days, expecting to provide for them well into their adult lives. The younger daughter Helga from an early age helped keep farm and family running. She and her mother grew melons and vegetables in the sandy lakefront soil to help supply food during the Depression, and raised rabbits and poultry.

The Sandburgs' famous goat herd was started when Carl rejected young Helga's request for a cow. Instead, she and her mother bought three goats.²⁶ This decision would lead the family to Connemara.



Figure 16. Clara Sandburg (Carl's mother), Carl, Helga, and Janet in Elmhurst, Illinois, 1924.

22. Penelope Niven, "Carl Sandburg's Life," *American National Biography Online*, <http://www.anb.org/articles/16/16-01435.html>.

23. Steichen later became director of the Department of Photography for the Museum of Modern Art in New York.

24. Niven, "Carl Sandburg's Life."

25. Barbara Stodola, "The Harbert Years," *Lake Magazine*, February-March 2007, <http://www.lakemagazine.com/magazine/article.asp?articleid=LID-1221-6U98C-20064836>.

26. Ibid.

Mrs. Sandburg began raising goats and named the property Chikaming Farm for its location in Chikaming Township. She added pens and buildings to house the growing herd, and with the help of her daughters, bred prize animals, in 1940 winning the Toggenburg breed's Grand Champion silver, and the Nubian breed's Grand Champion gold.

These were dairy goats, judged in part on milk production. A 1943 visitor remarked in the *New England Goat News*:

She has a very lovely, but unpretentious place on top of the dunes, overlooking the lake. The barns are many and are placed up the sides of the dunes -- very well built and with some very good ideas. Milk room equipment ultra modern.²⁷



Figure 17. Goats playing in Michigan, 22 May 1945. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, inventory number 018-006-022g)

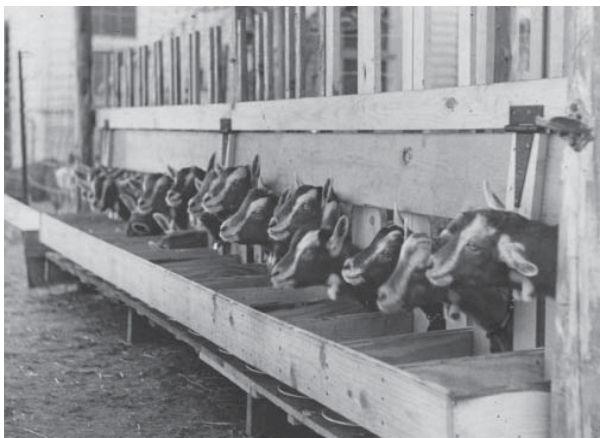


Figure 18. Goats in feed stanchions, Michigan. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, inventory number 018-006-022II)

27. *New England Goat News*, 1943, http://www26.us.archive.org/stream/newenglandgoatne4243mass/newenglandgoatne4243mass_djvu.txt.

Connemara

In 1943, Carl Sandburg turned 65. Mrs. Sandburg's champion goats needed wider pastures, a longer browsing period, and a warmer climate than the Lake Michigan dunes provided. With the country at war, she began to research suitable regions, studying weather maps and the geography of the United States for over a year. She narrowed it to southern California and western North Carolina, which her brother suggested after spending time in Asheville. She also had visited North Carolina briefly in the 1930s on a trip to Florida.²⁸

When gas rationing ended in 1945, Mrs. Sandburg, her daughter Helga, and her sister-in-law Dana Steichen travelled to North Carolina where an Asheville real estate agent, K. G. Morris of Brownlow Jackson Realty, showed them three properties.²⁹ At Connemara she found a 245-acre estate with a three-story house with space for living and for work. More important was the layout of the building complex, the barnyard far enough from the house that Carl would not hear the noise of the farm activities while writing. The barn complex and its location was perhaps the major factor in the Sandburgs' choice of Connemara. The property was available for \$45,000, which she thought was high.

She brought Carl to visit Connemara in the early fall, and his decision was swift: "This is the place. We will look no further." In a 1968 interview, Mrs. Sandburg remembered their conversation: "I said to him, 'It is a little expensive.'" "All right," he said. "You take the train home and I'll take my train in the other direction and earn some more money." He signed the papers that day.³⁰

The Sandburgs paid the \$45,000 for the land with its house and barn complex and outbuildings. Sandburg believed they had bought a "village" and Mrs. Sandburg a "million acres of sky." Before they left Michigan, a 1945 newspaper quoted Carl Sandburg as saying, "A long time ago I told

28. *Charlotte Observer*, 6 March 1977. (CARL 4022, Ephemera Collection, NHS Scrapbook 1967-1981, CARL 109054, series 2, item 1). Paula Steichen, *My Connemara* (New York, NY: paperback edition, 2002, originally published by Harcourt Brace & World, Inc., 1969), p.7.

29. "Noted Poet Buys Smyth Property," undated unidentified newspaper clipping. (CARL Coll. 28458)

30. *Christian Science Monitor*, 10 April 1968. (CARL 4022, Ephemera Collection, NHS Scrapbook 1967-1981. CARL 109054)



Figure 19. Aerial showing the barn complex at a distance from the house.

her [Mrs. Sandburg] and my daughter Helga that whenever and wherever they found a place they liked better than Harbert, Michigan, we'd pull up roots. So--we're pulling them up."³¹

A Chicago newspaper speculated,

For Carl Sandburg the move to North Carolina will be a hard pull. It has been made necessary, we learn, by the icy winds that sweep the Michigan sand dunes in winter. Mr. Sandburg has acquired a historic estate in which he can commune with ghosts of the Civil War. It is the house of Christopher Memminger, secretary of the Confederate treasury under Jefferson Davis, near Hendersonville, N.C.³²

The Move

Mrs. Sandburg made significant changes to the house and barn complex even before they moved. She selected Joe Anders as her contractor, made several visits, drew detailed sketches of alterations and had extensive correspondence regarding the work. She changed the layout of pastures and added fences and pens as needed for the goat operation. Anders was expected to have the house ready for people and the barns ready for goats.

In Harbert, boxcars were packed sending goat equipment and fixtures for the barn, and bookshelves, all to be installed before the family's arrival. The next boxcar held the 21 tons of books.³³ In mid-November 1945, Mrs. Sandburg and her housekeeper drove to North Carolina pulling a trailer of sixteen prize goats. The rest of the goats were shipped. Helga and her sisters, now in their twenties and thirties, completed the packing and in late December drove from Michigan. Their introduction to the warm Southern climate began with an ice storm that delayed their arrival at Connemara until January 2, 1946.



Figure 20. Carl Sandburg in front of the house. (CARL 109103; photograph by June Glenn, Jr., with permission)

31. Unidentified Chicago newspaper, Steichen, *My Connemara*, p. 6.

32. Steichen, *My Connemara*, p. 6.

33. Stodola, "The Harbert Years."



Figure 21. The green pastures of Connemara. (2013 photograph)

The Sandburgs kept the Connemara name but expanded it to “Connemara Farm,” the new stationery reading, “Connemara Farm, Chikaming Herd of Officially Tested Dairy Goats, Flat Rock, N.C.”³⁴

Helga’s journal kept during her first spring at Connemara shows high activity as they established the farm. On the last day of February, 1946, she bought three ducks and one drake, nine hens, a grey team of horses, a harrow, and a one-horse cultivator. The next day, “both hay fields finished plowing; cleared bottom land of brush to prepare for plowing. Barn hay field finished liming. Jasmine’s kids’ sores clearing up—separated from others. Frank Minsk [*sic*] hired for caretaker.” On March 5, “took goats to pasture and they lay down and enjoyed it,” and in late March she bought a cow soon due to calf: “plenty of cream now.”³⁵



Figure 22. Loading the boxcar. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, inventory number 018-001-016)

34. Steichen, *My Connemara*, p. 50.

35. “Connemara Farms Log--1946.” CARL 4014, box 1, folder 9.

The Sandburgs lived 22 years at Connemara, a productive time for the family. While there he received his third Pulitzer Prize and composed nearly one-third of his life’s work. Mrs. Sandburg became an authority on goat genetics; her breeding program produced national and world records and led to the improvement of dairy goats as milk-producing animals. Helga was full partner in the goat operation, raised her two children on the farm and began a successful writing career. Janet and Margaret helped both parents in their work.³⁶



Figure 23. Helga’s children Paula and John Carl at the barn, 1951. (CARL3000-10-26P)

The Goat Operation

By 1947 Mrs. Sandburg expanded the herd to 92 goats and added a Milk House to the commercial dairy.³⁷ At its peak, the Chikaming herd had about 200 goats. Mrs. Sandburg began reducing the heard after Helga left in 1952, but continued her breeding of high producers and expanded the Milk House. Her goats were habitually champions, and in 1960, doe Jennifer II set the world record for milk production with 5,750 lbs. of milk in ten months.³⁸

36. Helga remarried in 1951 and moved to Washington DC a year later.

37. Niven, p. 581.

38. “A Poet’s Perspective,” <http://doubletroubleranch.com/goats/a-poets-perspective/>.



Figure 24. At the 1957 Tryon Goat Show accepting one of her many trophies, here with Frank Vida. (CARL 955)

Despite the many publicity photographs of Carl Sandburg shown at the barns or holding a goat, he was not involved in the operation of the farm and rarely visited. Mrs. Sandburg oversaw the day-to-day decisions, hiring workers, altering barn buildings; she also handled the finances of the family.³⁹ Sandburg welcomed her abilities. He wrote to his publisher in 1953, "Paula is a wonder in all ways as a helpmate.... She is steadily reducing the herd but so long as she stays ambulant she will be breeding goats as her brother does delphiniums: it is a genius with her and the goat industry idolizes her for her knowledge and lighted enthusiasms."⁴⁰

The work of a champion breeding and dairy farm was never-ending, requiring the help of hired dairy workers. Helga's daughter Paula Steichen describes the daily feeding of the kids.

Along with Helga, my Aunt Janet helped with the farm work, rising every morning at 5:30 to feed the dogs and give the first milk-feeding to the baby goats. She took charge of all the kids which arrived in singles, twins, triplets and often quadruplets from Christmastime until June. Several times a day she measured heated milk into double rows of white pans, then let the mob of kids loose to hurtle down the runway and push their heads into the stanchions. They drank with loud sucking noises, butting the pans passionately when the last bit of milk was gone.⁴¹

39. Steichen, *My Connemara*, p. 17.

40. To Alfred Harcourt, 24 September 1953, Herbert Mitgang, ed., *The Letters of Carl Sandburg* (New York: Harcourt Brace and World, Inc., 1968), p. 495.

41. Steichen, *My Connemara*, p. 25.



Figure 25. John Carl scrubbing down the milking parlor, 1951. (CARL3000-09-27P)

In her office at the house, Mrs. Sandburg kept index cards for each goat with lineage, birth date, whether disbudded or hornless, color and markings, date sold, customer, and the like.⁴² At the barn, careful records were kept for every milking of those goats on the Advanced Registry Test program. Inspectors visited periodically, without warning, to watch the weighing of the milk.⁴³

The grandchildren also helped and were devoted to Connemara. Granddaughter Paula remembers, "I once turned to Gramma, in whom I had immense trust, and asked her how it could ever be bearable to live elsewhere."⁴⁴



Figure 26. Helga with does in the milking parlor, 1951. (CARL3000-08-49P)

42. CARL Doc Box F.O. 18.

43. Doc Box F.O. 23, folder CARL92898.

44. <http://www.nps.gov/history/museum/exhibits/carl/family/IFRAME.html#more>. Paula Steichen wrote a memoir, *My Connemara*, in 1969.

1957

Name of Cow														Date of Service										Date of Calving																																																																																																																																																																																																																																																																											
DATE	Rank Place	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR NUMBER	NAME OR

Figure 27. Portion of Milking Chart posted in milking parlor for daily recording, this one from 1957. (CARL 92898)

Caretakers

Like other Flat Rock places, Connemara was overseen by a caretaker, the term used throughout Flat Rock to denote the man who lived on the place with his family, and was responsible for the year-round management of the property for the owner. This included care of the buildings, grounds, animals, crops, flower and vegetable gardens. Other workers were often hired, some living on the property. The Sandburgs used the term farm manager.

Ulysses Ballard, who was the Smyths' trusted caretaker for decades, remained with the Sandburgs for only a few months. He left in part because he preferred Guernseys to goats, but he was also unaccustomed to the Sandburg's more relaxed approach to upkeep and appearance.⁴⁵

Frank Mintz, Jr. was hired in March 1946 as farm manager working with other farm employees. An Osteen may have been hired as caretaker when Ballard left and until Mintz started. In the 1950s Leroy Levi, who had worked under Mintz, filled the position.⁴⁶

45. After leaving Connemara, Ballard worked for the King family at Argyle on the Greenville Highway. Frank Ballard interview (Ulysses' son), 19 October 1982.

46. The Osteen family worked at Connemara when the Smyths owned it and lived in the house converted by the Sandburgs to a buck house. At least one of the Osteen daughters was born there. The same Osteen may have returned as caretaker after Ballard's departure; Glenn Barnwell interview, 1 July 2012.

The Barns

The large number of buildings in the Sandburg barn complex was necessary for the operation of the farm. The age and gender of a goat determined where it was quartered. At the minute of birth, an infant kid was taken from its mother and tended by a barn worker, usually Helga during her years there. Until the kids were three weeks old, they were kept in wooden nesting boxes, or "warming boxes," in a warm room in the brick basement of the house where they could be tended frequently.



Figure 28. Babies in warming box in basement of the main house. (CARL3000-44-028P)



Figure 29. Helga and goat kid. (CARL3000.08.48P)

At three weeks and until they were six weeks old, the young kids were moved to the Chicken/Wash House.⁴⁷ Kids of both sexes were moved to the barn complex at six weeks and housed in the west section of the goat barn with access to the west field. They were fed in the adjacent west room of the north addition, where metal pans of milk were placed in indentations in the cement floor and wooden head stanchions separated them from their neighbors' pan.⁴⁸

At twelve weeks, the female kids were put with the female herd; males were moved to the buck kid quarters with its penned area to the east. Until they were about one-and-one-half years old, the female goats were fed in the horse barn, separated from the older females going to the main barn to be fed and milked. The buck kids were moved to the more distant buck house, a converted early residence down the hill to the northeast, behind the caretaker's house.⁴⁹ Some bucks were housed in small sheds in a west pasture by a pond, their separation necessary to reduce fighting. At times "non-performing" bucks were kept in sheds across the road from the barnyard and in the surrounding pen while Mrs. Sandburg decided whether to sell them.⁵⁰

Kids were sold to breeders throughout the nation and abroad, usually for \$65 to \$150 depending

47. An Historic Structure Report for the Chicken/Wash House was completed in 2007.

48. Janine Donovan interview, 17 June 2012.

49. Ibid.

50. Donovan, June 2012, from her conversation with Helga's son John Steichen.



Figure 30. Crated goats being shipped at the Hendersonville depot. n.d., photographer unknown. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, Carl Sandburg Collection Photographs, inventory number 014-029-024)

on the mother's milk production. The kids were placed in handmade crates, deep with bedding straw, and shipped from the Hendersonville Depot to their new owners.

Other buildings helped Mrs. Sandburg's strict regimen for preventing mastitis, an infection of a goat's udder and a major concern in dairy farms. The sink was an important component of the milking parlor. Before milking, each udder was washed with an iodine solution, then dried, and the milker washed his hands in the sink before moving to the next goat. The dairy reduced the outbreaks of mastitis; however, when a doe was infected she was moved to the isolation quarters next to the barn garage or to another isolation shed to prevent infection of straw where other goats lay.⁵¹

The 1960s

Mrs. Sandburg was 77 when she won her world record in 1960; Carl was 82. His health began to deteriorate in 1963, and he was hospitalized after an extended trip to California. Mrs. Sandburg began reducing the herd. By 1965 he was spending a lot of time in a hospital bed at Connemara, and

51. Leroy Levi interview, 19 June 2012, and various.

CHIKAMING HERD
Officially tested 24 years



NUBIAN SALE
 Top *buck and doe kids, born January and February from our best AR Nubians.

TOGGENBURGS
 *Buck and doe kids from Jennifer II bloodlines

Mrs. Carl Sandburg
 Flat Rock, North Carolina

Figure 31. Advertisement for sale of kids from bloodlines of world champion Jennifer II. (*Dairy Goat Journal*, March 1962)

rarely left the estate. He died on July 22, 1967. After a simple funeral at the nearby St. John in the Wilderness Church, his body was cremated and his ashes buried beneath a boulder behind his birthplace in Galesburg, Illinois.

The herd had fallen to about sixty goats at the time of Carl Sandburg's death, and shortly afterward, Mrs. Sandburg sold them. As discussed with Sandburg before his death, she would transfer the property to the National Park Service. Although she initially proposed donation, she was advised instead to sell in order to assure adequate finances for her dependant daughters Margaret and Janet. As a result, she sold the buildings and grounds and donated the contents.

She planned to move to Cleveland to be near Helga and her husband, but delayed the move because she wanted Connemara to be "shipshape" for the Park Service before she left. In January 1969, she wrote to the superintendent that "Mr. Udall, the former Secretary of the Interior, told us to feel free to take all the time we need."⁵²

By June, plans had changed. Mrs. Sandburg, Margaret and Janet would move in mid-July not to

52. Mrs. Sandburg to Granville B. Liles, Superintendent Blue Ridge Parkway, 31 January 1969, 27 February 1969. CARL 4014, box 1, folder 16.

Cleveland, but to Asheville.⁵³ Though her donation of furnishings allowed her to keep what she needed, she chose to leave the house as it was when Carl Sandburg lived there, and left with little more than her personal possessions and a few family mementos for her daughters. She died on February 18, 1977 at the age of 93; her ashes are buried with her husband's.

National Park Service

The government's part is to maintain a symbolic herd and to tell visitors to Connemara about my mother's role in the goat industry, while maintaining an atmosphere in the home in which my father was able to continue to write and to enjoy himself fully.... My mother's hope and aim was to have the People of the Nation remember my father fondly, proudly, and perhaps to stir the Young especially. She and my father had a way always with young people.⁵⁴

Helga Sandburg Crile, 1978.

Soon after Mrs. Sandburg's offer of the property as a memorial, Secretary of the Interior Stewart Udall, who was a friend of the Sandburgs, visited Connemara to discuss the proposal and gave it his full support.⁵⁵ With his and U.S. Representative Roy Taylor's encouragement, Congress purchased the house and 242 acres for \$200,000 in 1968. Mrs. Sandburg donated all contents, signing a deed of gift in July.⁵⁶ On October 17, 1968, President Lyndon Johnson approved the Congressional Act establishing the Carl Sandburg Home National Historic Site (Public Law 90-592).

The Park Service announced its plans for the barn complex in a brochure published in the Hendersonville *Times-News* in March 1968. Among the general concepts was Connemara as a Working Farm:

The essential life of Connemara during the Sandburg years cannot be conveyed to visitors unless farming continues. Cows, goats, hogs, dogs, cats, and tractors are as much a part of this scene as the books and manuscripts in the house. The Park

53. Mrs. Sandburg to Liles, 30 June 1969. CARL 4014, box 1, folder 16.

54. Helga Sandburg Crile to Mrs. Wohlford (owner of two Connemara bucks), 4 July 1978. CARL 4014, box 1, folder 5.

55. Jones, *Swedish House HSR*, p. 19.

56. The site included an additional six acres of adjacent land.



Figure 32. Stewart Udall in the living room at Connemara, October 1967. (CARL3000-14-16P)

Service thus proposes that Connemara be operated as a demonstration farm, featuring a goat herd of the type the Sandburgs had. Visitors would have an opportunity to see all phases of a goat farm in operation and perhaps sample the products.⁵⁷

The Park Service announced its plans for the barn complex in a brochure published in the Hendersonville *Times-News* in March 1968. Among the general concepts was Connemara as a Working Farm:

The essential life of Connemara during the Sandburg years cannot be conveyed to visitors unless farming continues. Cows, goats, hogs, dogs, cats, and tractors are as much a part of this scene as the books and manuscripts in the house. The Park Service thus proposes that Connemara be operated as a demonstration farm, featuring a goat herd of the type the Sandburgs had. Visitors would have an opportunity to see all phases of a goat farm in operation and perhaps sample the products.⁵⁸

Congress authorized \$952,000 as the ceiling to be spent on the complete restoration of the Sandburg property, including the house, its associated outbuildings, the barns and grounds. However, by August 1970 only \$100,000 of the sum had been appropriated; work was stopped.⁵⁹ The hope was to receive funds in time for the park to open in the

summer of 1972. Crews were to be hired under contract to finish the restorations, but Congress's further delay in releasing the funds postponed the work necessary to accommodate visitors.⁶⁰

Funds were directed first to rehabilitations of the buildings in the house complex. NPS then turned its focus to the barns.

Return of the Goats

The park's 1970 master plan called for a token herd of about 30 goats; however, the park historian wisely suggested starting with eight or ten goats. During the summer of 1972, NPS staff and members of the Neighborhood Youth Corps worked to rehabilitate three unidentified farm buildings and the goat barn.

The barn doors opened in September 1972 to three goats, descendents of Mrs. Sandburg's herd, who were to be the nucleus of a small dairy operation for exhibit. Superintendent James Kretschmann explained that rehabilitation of the farm buildings and the goat herd were an integral part of the overall plan for the Sandburg Home because "the animals were so much a part of the Sandburg family life that their influence was felt in Mr. Sandburg's writings and work habits."⁶¹

Before the park opened in May 1974, seventeen goats were at Connemara and a spring crop of kids was expected.⁶² By the summer of 1976 the herd numbered 25 and operated as a dairy. Farm practices were carried out in the Sandburg fashion: high-producing does were on official test, and new kids were taken immediately after birth to the warm basement of the house. The farm began to sell kids to other goat breeders, and planned to show some of the adult goats.⁶³

The work proved overwhelming. Four years later the park changed course, reducing the number of goats and ending the working dairy to create instead a display farm "to make it easier to manage and provide historical insight to Carl Sandburg,

57. "Proposal to Make Sandburg Home a National Historic Park," *The Times-News*, 21 March 1968. (CARL 4022, Ephemera Collection, NHS Scrapbook 1967-1981, CARL 109054, series 2, item 1)

58. "Proposal to Make Sandburg Home a National Historic Park," *The Times-News*, 21 March 1968. (CARL 4022, Ephemera Collection, NHS Scrapbook 1967-1981, CARL 109054, series 2, item 1)

59. William H. Hackett, "Manager-Historian for Sandburg Place Named," *The Times-News*, 25 August 1970.

60. Ibid.

61. Mead Parce, "Sandburg's Goats Back," *The Times-News*, 22 September 1972.

62. "Connemara May Be Open on Limited Basis in '74," unidentified and undated article, probably early 1974, probably *The Times-News*. (CARL 4022, Ephemera Collection, NHS Scrapbook 1967-1981, CARL 109054)

63. Cynthia C. Muerdter (NPS), "Chikaming Goat Herd Still Thriving," *Dairy Goat Journal*, July 1976. (Ephemera Collection)



Figure 33. Visitors at the barnyard enjoying the goats, 2012.

his family and life. This means the goats, horses, cats and all the farm animals will remain except for two pigs,” explained an NPS spokesperson. “The difference will be the Park Service isn’t going to continue an expensive and difficult dairy operation and breeding program for authenticity. . . . Children will still be able to pet the goats. The only change will be farm personnel won’t be milking at 6 a.m. and 6 p.m., processing milk and doing other chores for a high class dairy that has no market for goat’s milk. The farm will be a display farm rather than a real honest-to-goodness working farm.”⁶⁴

Criticism of the park’s approach to reducing the herd and ending the dairy was widespread among goat breeders nationally, who protested the manner of drying the milk goats. Breeders from across the country alerted Congress to their concerns. Some who had donated Mrs. Sandburg’s bloodline goats or sold them to the park at reduced prices objected to the park’s turning the farm into a petting zoo rather than showing the public the Sandburg enterprise.⁶⁵

The Charlotte Observer summed it up: Mrs. Sandburg sold all her goats before she moved away in 1968. The Park Service decided to create and keep a token herd, which grew to about 35, more goats than Connemara’s budget could support. The herd produced about thirteen gallons daily; most was poured out. “By federal law, we can’t sell it,” explained administrative technician Paul Rusher. The herd was reduced to sixteen, who produced about two quarts a day that was fed to the cats.⁶⁶

64. Editor’s comment, *The Times-News*, 12 July 1978.

65. Licia Gaut, “Sandburg Goats Concern,” *The Times-News*, 26 July 1978. (Ephemera Collection)

66. Jim Dumbell, “Crying Over Spilt Milk, or, Crisis in

Current Goat Program

Today the barnyard with its small herd is a highlight of the park. A 2008 visitor study found that the barn was the most visited site at the park, with 68% of visitors making sure to see the goats.⁶⁷ The herd is kept to about 15, with a few does bred each year to continue the Sandburg lineage. The goats are all descendents of the original herd. To maintain the herd size, an auction is held in the fall after the county fair where selected kids, does, and bucks are sold. The bucks are sold and replaced every several years to prevent inbreeding.

Volunteers carry out the daily chores under supervision of specialized rangers. During the day the does are kept in the field, the kids in the barnyard. The three bucks are kept across the drive from the barn complex in a former isolation shed and surrounding pen.



Figure 34. Goats at the barn door, 2012.

Connemara: Complaints about the Goats are Herd,” *The Charlotte Observer*, 30 September 1978.

67. CARL Visitor Study, Spring 2008, Park Studies Unit, Visitor Services Project, Report 201 (NPS Social Science Program Visitor Services Project, December 2008).

I.B Chronology of Development and Use

The barn complex was built by C.G. Memminger on land he added to his Rock Hill property in 1850, when he more than doubled his holdings.⁹⁹ From the start, Rock Hill was a working farm. His son Edward Read Memminger wrote of Memminger's initial purchase, "He was on the lookout for a farm; he seems to have visited several but none suited." C.G. Memminger noted in his October 1836 journal that he spent several days "looking about in every direction for a farm," and continued, "but as I also wanted a farm I could not be so easily furnished as the land near Flat Rock is miserably barren."¹⁰⁰

By late 1837 he selected a site and begun preliminary work on the property, although he did not actually take title until 1838.¹⁰¹ Buildings for his animals were undoubtedly built even before the house. Memminger bought oxen and mules to haul stone during construction of the house, and would have needed shelter for horses, carriages, farm equipment, feed, and the like.¹⁰² He likely started his farm in the early stages of developing the property. He identified certain outbuildings in his account book, but the only farm buildings named are a stable, built in the summer of 1838, and a wagon house by 1843. Other buildings include an ice house in 1847, a servants' house by 1853, and a smoke house in 1855.¹⁰³ Many of his domestic outbuildings remain and the sites of others are known; however, the locations of early farm

buildings have not been documented. It seems they were not at the current barnyard site; Edward Memminger recalled that "when the house was built, my father did not own the vegetable garden, nor stable lot, and water was taken from the spring in the hollow."¹⁰⁴

The site of the current barnyard was added to Rock Hill in the purchase of a large acreage in January 1850. Construction of a new barn may have been underway that fall when, on September 24, he paid "twenty-four dollars for Lightning Rod to stable."

Other farm buildings are not noted. He recorded numerous purchases of lumber, shingles, and other building materials in and after 1850, which could suggest barnyard improvements, though we know a servants' house and smoke house were underway in those years.¹⁰⁵ In 1852 he cleared half an acre, built at least one fence, and bought lumber and logs. He bought more fence nails the following year and received regular delivery of oats and hay. Purchases of additional building materials—boards, shingles, flooring, joists, laths, and more fencing—continued in the mid-1850s, perhaps for construction at his new barnyard, but possibly for his Valley Farm to the north.

Memminger made only occasional entries in his account book after the mid-1850s, and farm buildings are not mentioned, though he needed buildings for the "Herds of Cattle – flocks of sheep on lawn" remembered by a Memminger cousin.¹⁰⁶

Similarly, the original layout of Memminger's "stable lot" is not documented. Two buildings in the complex may date from the nineteenth-century Gregg ownership, or perhaps even the

99. Sadie Smathers Patton, *Flat Rock: Little Charleston of the Mountains* (Asheville: Church Printing Company, NC; privately published by Sadie Smathers Patton, 1961), p. 21.
100. Edward Read Memminger, *An Historical Sketch of Flat Rock*, Asheville: Stephens Press, 1954; published privately by Marjorie Memminger Norment (E.R. Memminger's daughter), written 1922, p. 13. Sadie Smathers Patton, *Flat Rock: Little Charleston of the Mountains* (Hickory, NC: Sadie Smathers Patton, 1961), p. 39.

101. Buncombe County Deed Book 21/445.

102. Jones, *Main House HSR*, pp. 14, 56, 57.

103. *Ibid.*, pp. 17, 57. "C. G. Memminger Papers, 1803-1915," Southern Historical Collection, University of North Carolina at Chapel Hill, collection 00502 folder 9.

104. Memminger, p. 14.

105. "C. G. Memminger Papers, 1803-1915,"

106. Caroline Pinckney Rutledge to Carl Sandburg, 29 June 1946, found in Jones, *Main House HSR*, p. 25.

Memminger period. The building known today as the isolation quarters is constructed of cut nails and early plank boards. Similarly, early nails and construction details of the buck kid quarters suggest a nineteenth-century date.

It is likely that Gregg in 1889 found buildings in need of maintenance and updating. After the Civil War, Memminger's attentions were on establishing a business life in a changed society and economy. It is doubtful that Rock Hill was his priority, though critical maintenance would have been seen to by the caretaker. He may have turned again to Rock Hill in the 1870s and conducted the first significant work on the property since the start of the war. It seems unlikely that he, at an advanced age, would make great change or improvements to the buildings in the years before his 1888 death.

The Greggs are known to have made significant updates to the main house after their 1889 purchase, and probably updated or built new barns, at that time critical to life at Rock Hill. No photographs or documents have been found listing the buildings present in the transfer of land from Memminger to Gregg, or from Gregg to Smyth.

However, in a 1976 interview, one of Smyth's granddaughters recalled that her grandfather added to and adapted Memminger's farm complex.¹⁰⁷ It is likely that Gregg retained many

107. Interview, Mrs. Rogers, Smyth's granddaughter, 3 December 1976.

of Memminger's buildings, probably completing needed repairs on several while he updated the main house, and perhaps adding others. Significantly, an early Smyth photograph shows the roof of a large gabled building at the west edge of the barnyard. Probably a barn from an earlier owner, it formed a defined rectangular barnyard not present during the Sandburgs' time. (*Fig. 107*).

Smyth photographs and interviews confirm that the layout and buildings during his time were those in place today, with the exception of the large building at the west perimeter and a shed on the east, both since demolished. Captain Smyth took great interest in the barns and his farm operations, and added at least six of the current structures. Two later buildings, both outside the rectangular barnyard, were added by the Sandburgs.¹⁰⁸

According to interviews with his grandchildren and his caretaker's family, Smyth closely supervised all aspects of the farm operation, taking pride in his champion Guernsey herd and introducing turkeys and other fowl for his enjoyment. His farm buildings, though simple and generally unadorned, are well-built, with attention to detail and use of materials.

Smyth's insistence on craftsmanship and maintenance was in contrast to the Sandburgs'

108. The Sandburgs built the shavings shed and milk house.



Figure 35. The barnyard in 1956 when the goat program was fully active; panorama looking north and showing the large elm tree and details of the barn, corn crib, and buck kid quarters, photographed during a visit by University of Illinois representatives. (CARL 3003-2.3-1)

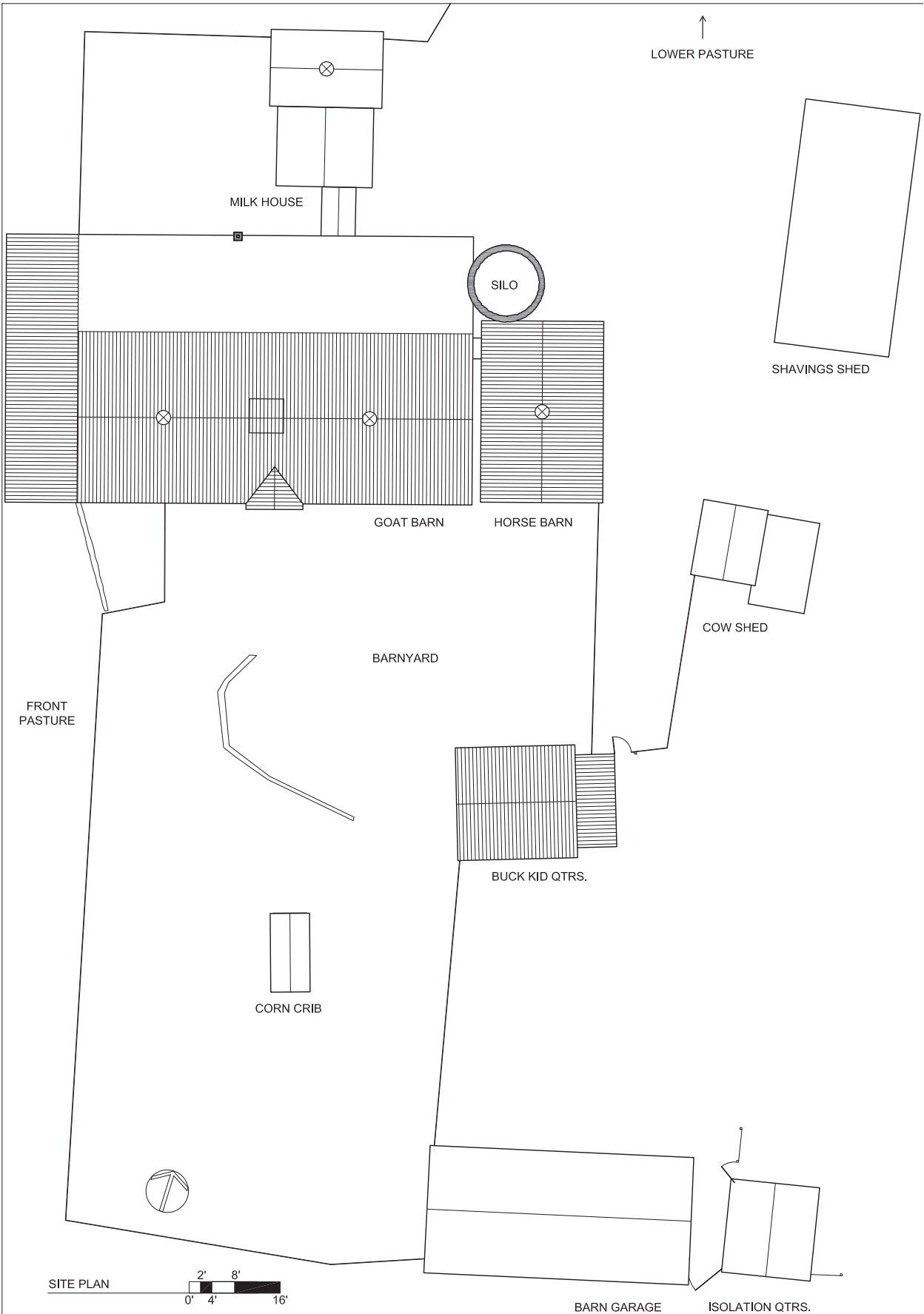


Figure 36. Site plan of barn complex, 2011.

more practical approach. Whereas the Sandburgs put much planning and expense into the initial 1945-1946 conversion of the barn complex for use as a goat dairy, after completion, they focused on the operations of the farm, making repairs to the barns only as needed and with materials at hand.

Necessary updates were made, especially construction of a bottling house and storage shed, but changes were made as needed with available materials and less concern about appearance, at the same time maintaining rigorous management of the dairy operation. Sandburg's granddaughter Paula Steichen, in her taped conversations with NPS about family photographs, pointed out that Connemara was not kept perfectly:

I'm not trying to stress a run-down look, but don't forget there was only one person working on that place [after the herd was reduced] to do all the feeding and caring of the animals and all of the grounds working and all of the running to town to do the grocery and the going to the mail box, all the taking of Margaret and Janet to the hairdresser. . . . I don't think Connemara ought to have a run-down look but it ought to have a homey, used look to it. Because that's the way it was. It should not give the impression that [it] takes 30 people to keep it up physically. It should give the impression of just a family living there.¹⁰⁹

In her discussion of NPS treatment, Paula also mentioned weeds and old boards.

In the late 1960s as the goat program was winding down and the Sandburgs aged, some of the buildings were neglected beyond Paula's portrayal of casual maintenance. Late Sandburg photographs and those taken soon after NPS acquisition show the complex in poor repair. In particular, a series of photographs taken by the NPS Division of Audiovisual Arts in 1971 shows the level of deterioration. The listing corn crib is supported by a wood pole, and its northeast corner rests on a temporary cinder block footing. The roof of the buck kid quarters has open areas and is covered with tarpaper. The gate between horse barn and main barn is missing. Much of the main barn's glazing is missing, and most of the buildings need paint.

NPS acquired the property in 1968. The park focused first on repairing the main house complex before turning to the farm buildings in 1972.

109. Her discussion of photograph CARL 3000-04-32P is typed on back of photo envelope.



Figure 37. Poor condition of the barnyard, 1971. Tom Gray, photographer, NPS Division of Audiovisual Arts. Among visible details are doors, windows, and corn crib footing. (CARL 4009-2-1-G-84)

Despite the slow trickle of funds coming to the park, considerable work was undertaken to prepare the barnyard for visitors. Although most projects were specific to buildings and are described individually below, some addressed the barnyard as a whole.

In 1977, some years after completing initial renovations and restorations at Connemara, and recognizing that the many structures on the property would require continued maintenance and rehabilitation, the park prepared a Section 106 Statement for "Preservation and Stabilization of Carl Sandburg Home National Historic Site." General preservation measures to be followed were defined. The Advisory Council on December 14, 1977, agreed that projects adhering to the statement would have no adverse effect under Section 106 regulations.¹¹⁰ Documents prepared for compliance with Section 106, both before and after the 1977 agreement, provide information on several projects, some with more detail than others.

From the start, NPS was concerned that the overhead electric and telephone wires distracted from the aesthetic character of Connemara. The lines were buried in 1971, but by 1977, NPS determined that the burying had been a mistake, and proposed a phased project to reestablish

110. CARL 5023, box 1, folder 1. Section 106 of the National Historic Preservation Act of 1966 addresses protection and appropriate treatment of historic places.

overhead power lines “to restore the historic scene at Connemara as it was when the National Park Service assumed jurisdiction of the area in 1968.” Some lines were to be energized; others would be “dummy” lines for visual effect. The State Historic Preservation Office was “skeptical as to the overall worth of this project, particularly as money was expended in 1971 to bury the electrical system.” The SHPO further suggested that NPS install a system appearing contemporary to Sandburg’s time rather than to 1968.¹¹¹

Lines on poles were installed near the main house. At the barn complex, NPS employees installed a dummy wire, for appearance only, leading from the house complex through the woods to a new phone pole near the milk house, which remains today unconnected. The buried electric and phone lines remain the source of power to the barn complex; the only above-ground service is from the barn garage to the isolation quarters and from the barn garage to the distant pumphouse.¹¹²

An integral part of the barn complex was a large American elm tree located in front of the barn and surrounded by a low stone wall. The tree is shown in photographs from the Smyth and Sandburg eras and was a functional element of the Sandburg’s goat operation, providing necessary shade to the barnyard.

Concerned that the tree would fall towards the barn, Mrs. Sandburg had a cable installed tying the elm tree to a tree behind the barn garage. Years later, a windstorm in 1985 destroyed the elm, leaving only a tall stump with an opening a person could stand in. The cable did its job and prevented the tree from falling on the barn; it fell instead on fences, and a branch barely clipped the corn crib. No other buildings were damaged. In 1991 the park replaced the stump with a “disease free disease resistant” American elm brought from Columbia, South Carolina. The surrounding wall was retained.¹¹³

111. Letter Brent D. Glass to David G. Wright, Acting Regional Director, SERO, 22 August 1977; CARL 5023, box 1, folder 1.

112. Austin Ducker, Glenn Barnwell, and a third employee installed the lines. Barnwell was the park electrician who worked also on maintenance projects; Ducker was a maintenance mechanic; interviews, 30 June 2012 and 1 July 2012.

113. CARL 5023, box 2, folder 1.



Figure 38. The Sandburgs sitting on stone wall around the elm; barn in background. n.d., photographer unknown. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, Photo shelf Mark B7-05; no inventory number)

Several buildings in the barn complex were painted in June 1984, along with the main house and nearby buildings, including the chicken house/wash house, tenant house, house garage, maintenance shop, and greenhouse. The work was completed by Marine & Industrial Insulators, Inc. of Charleston, South Carolina.¹¹⁴

The rotted posts of the post-and-wire fence creating the west border of the barnyard were replaced in 1992. Two other farm fences were repaired, including the plank board fence between the barn garage and the buck kid quarters. The location of replaced boards in the plank fence is not specified. The NPS Southeast Regional Office (SERO) recommended that new material be date marked, and required replacement to be in-kind “with particular attention to material character (saw marks, wire gauge, etc.).” It was recommended that, if replacement materials were not available, samples of historic material would be “put in park study collection.”¹¹⁵ The fence was altered by barn staff in about 2010 when a square “viewing” opening was cut for visitors.

A broad request was submitted in 1997 for reroofing of “a number of buildings. . . . We will reroof as many buildings as money will allow.” The list included the back shed of the main barn, the milk house, the cow shed, the shavings shed,

114. Joseph K. Oppermann, *Carl Sandburg Home National Historic Site, Chicken House/Wash House Historic Structure Report* (Atlanta: Cultural Resources Division, NPS-SERO, 2007), p. I.B.10.

115. Memorandum from Paul Hartwig, Deputy Associate Regional Director for Cultural Resources, SERO, to Superintendent, 21 Feb. 1992; CARL 5023, box 3, folder 1.



Figure 39. Opening cut in board fence around 2010 for visitor viewing.

and “all small outbuildings.” Park maintenance staff was to remove roofing, repair or replace any broken or rotten underlayment, and buy roofing to match original colors. The park would hire outside workers to reroof most of the buildings, while park maintenance would reroof others. No further information is available.¹¹⁶

A major fire suppression project originally proposed in 1985 was revived in 1998. The barn complex was dropped from the 1980s work when limited funds allowed only the main house complex to be sprinkled. Using the 1985 plans “with deletions,” sprinkler systems were installed in several unidentified buildings in the barn complex, using plans developed by the NPS-SERO Historical Architect.¹¹⁷ Sprinklers were later installed in additional buildings.

Over the years, the lights in the buildings of the barn complex were rewired; older lines were disconnected but retained in place for more accurate interpretation.¹¹⁸

The Buildings

The ten buildings of the barn complex are discussed individually below.

Goat Barn (HS 16)

Construction characteristics of this, by far the largest barn in the complex, indicate it was built by Captain Smyth soon after his 1900 purchase. The

earliest known images of the barnyard are black-and-white photographs in the Smyth Collection, most showing children playing, and, though undated, taken in the earlier years of the 1900 to 1943 period. One photograph shows the front (south) façade of the barn quite different from its appearance today. The barn is a light color with white trim, the body perhaps the pale yellow or cream matching the early paints found during preparation of this report.¹¹⁹ At the center of the façade is a large sliding door on an overhead track; the door is painted white. In the eastern half of this façade is a row of three small windows typical of those in cow barns; their uneven spacing might reflect the interior configuration. At each window is an open shutter hinged on the left; surrounds and shutters are painted white. This section of the façade has no other fenestration. The western end is not visible in available Smyth photographs.

Centered on the roof ridge is the side-gabled cupola with slatted sides. The barn and cupola roofs are metal, perhaps standing-seam, with no visible front access to the hayloft.

A 1931 photograph of Captain Smyth’s holding a feed pail shows what appears to be the front (south) facade of the barn with the roof line of the horse barn in the background. The shutter at one of the two visible windows is now hinged on the right, perhaps switched to avoid interference with the sliding door. In this black-and-white photograph the surrounds and shutters appear to be the same color tone as the walls rather than the white seen in the ca. 1915 photo of the front.



Figure 40. Smyth granddaughters at the barn. n.d. (CARL 3001, Smyth Family Photograph Collection)

116. Assessment of Actions form, CARL5023, box 2, folder 1.

117. Assessment of Actions form, CARL5023, box 3, folder 1.

118. Ducker interview.

119. Analysis of finish samples found these colors in tested locations of the original barn (Appendix B -- Finishes Analysis 2014).



Figure 41. Smyth grandsons at play in the barnyard, showing the barn ca. 1915. (CARL 3001-04-01P)

Physical evidence makes clear the rear shed was added after construction of the barn proper; the shed covers the original decorative rafter ends of the gable roof, which are still present. Whether the shed was open, enclosed, or partially enclosed is unclear, but at least the east side wall was weatherboarded before the silo was built (*Fig. 50*).

The smaller shed on the west side of the barn, with its tall granite block foundation open to the pasture, was apparently added by the Smyths to provide a covered area for oxen. The color of the stone and size of the blocks match those in the -Smyth-built silo. Physical inspection suggests this shed was added after the long rear shed was in place, but before the rear shed was enclosed.¹²⁰ A Sandburg document confirms that a “lean-to,” probably the west shed, was built by the Smyths. In a letter of October 1945, Mrs. Sandburg wrote to her contractor: “You will not forget that the lean-to part of the barn has a leaking roof. . .”¹²¹

120. Amendment to National Register, 1995, p. 7-6.

121. Mrs. Sandburg to Joe Anders, 5 October 1945, Doc. Box F.O.2 [Mrs. Sandburg’s Farm Office files], CARL74126 folder 2.



Figure 42. Smyth in front of either the north or south façade of the barn, 1931. (CARL 3001-16-23P, Smyth Family Photograph Collection)



Figure 43. Rafter end at rear (north) barn elevation, later covered by rear shed addition.

Little is documented of the interior use of the barn during the Smyth era, though the cow windows and layout indicate that Smyth's Guernsey herd were housed in the east portion. Steers were kept in an unidentified section of the barn, perhaps beneath the west shed earlier used for oxen.¹²²

Mrs. Sandburg mentioned to Anders that the west side of the barn contained "old horse stalls... divided into pens;" however, it is more likely that Smyth horses were stabled in the adjacent horse barn with its wide front access.¹²³

Sandburg Alterations

The Sandburgs made immediate and major changes to the barn, both interior and exterior, with most completed even before their 1945 move to Connemara. Mrs. Sandburg, with Helga's input, prepared hand-drawn sketches on large sheets of graph paper illustrating proposed changes. The plan reflects some of their changing thoughts for the contractor's work. Notations were made on top of others, first in pencil, later in blue and red ink. Locations of overhead lights, some with pull cords, are drawn in orange pencil. The drawing does not distinguish the Sandburgs' proposed features from Smyth features already in place, although most can be determined and appear to be designed for the goat operation (*Figs. 53 and 54*).¹²⁴

122. Mrs. Sandburg to Anders, 5 October 1945, Doc. Box F.O.2, CARL74126 folder 2.

123. Mrs. Sandburg to Anders, 14 November 1945, Doc. Box F.O.2, CARL74126 folder 2. The current partitions in the west bay were built during the Sandburg years.

124. Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL71422.

At the center front of the barn is the "10 foot door," indicating Smyth's sliding single door, and a penciled gable with the note "Build gable for hay." Later photographs show the new central gable dormer with its large pulley for lifting hay.

The front windows are not shown in the drawing, but two pedestrian doors are indicated. The door east of the central door opens inward, with the notation "bring [?] door installed." This location apparently was re-thought. It is drawn at the current location of a window, just west of the door actually built, which opens outward. The drawing shows another door, west of the central door, hinged on the left as today, but opening inward. No other exterior changes are shown.

The western pedestrian door opens to a north-south "feed alley 4½ feet wide," lined on the west with two long "kid grain troughs" and on the east with circles depicting "18 grain pails." The alley's flooring material is not indicated but was probably cement. Gates are shown midway on both sides of the alley, both swinging out. Erasure marks show that previous locations were considered for the gates.

Three large hay mangers are shown, one in each bay with an associated gate, and smaller mangers along the west wall of the east bay and in the front section of the west bay. "Benches" are shown along the west wall of the west bay. In the southeast corner of the center bay is a "grain supply" area. A "slidedoor" is shown between the central and east bays, and a double tub is against the north wall of the east bay. At the far east is a row of six rectangular stalls stretching the full length of the east wall. The Sandburgs later cut a doorway in the east wall near the northeast corner, which led to a passageway to the horse barn. This is not shown in the sketch, which shows a stall in that location, and was added for convenience, probably in response to increased or changed uses.

Far more detailed in the sketch are the four rooms created in the long rear shed. Although the use and appearance of the shed by the Smyths is unclear, the Sandburgs created the dairy's operational hub there, the work center of the farm. Original openings in the back wall of the barn were infilled with wood, and pedestrian doorways were added

instead to provide large enclosed spaces in the barn for goats and to create the operational spaces behind. The rooms were constructed much as shown in those drawings.

The westernmost of the four rooms is the kid feeding room, labeled as 15 x 11 with two north-south rows of small circles representing indentations in the cement floor to hold pails associated with the “19 milk feed stanchions.” As constructed, the room was sectioned into three aisles designed for two rows of kids. Kids entered the room through a narrow door from the western bay of the barn, and were guided to the left or right aisle. Workers in the center aisle placed pans of milk in the indentations; the kids fed with their heads through stanchion fences to prevent “stealing” from their neighbors.¹²⁵

The sketch shows a doorway in the east wall of the kid feeding room leading to the main feed room, the only room in the barn designed for workers rather than goats, and accessed directly from the alley and new pedestrian front door. Shown along the north wall of the room is the three-compartment feed box, and added in blue pen are a “range” and refrigerator. A new chimney is drawn just to the east though no associated stove is indicated. Three kid boxes of different sizes line the west wall. These boxes, to hold the very young



Figure 44. Kid feeding room of the western portion of the rear barn shed, shown in 2012. Kids entered from the main barn and were guided to the side aisles. At the feeding area shown here, kids stood to the left with their heads reaching through the stanchion openings to milk pans in indentations in the cement.

kids, are probably those sent from Michigan. At the east wall are a water heater, relocated from a scratched-out earlier location at the north wall, and the long sink.

Granddaughter Paula Steichen remembers climbing in the bins as a child. One bin held citrus pulp—dried peelings of oranges, grapefruits, and lemons. Another held whole kernel corn, and the third was filled with sweet-feed made of oats, cracked corn, bran, and molasses.¹²⁶

Some notations on the sketch plan are illegible or unclear. Among them are a dashed rectangle extending into the room from the south wall, and a circle, possibly labeled “Heater,” drawn in an unlikely location perhaps four feet in front of the sink.

Six doorways enter the feed room: one from the west kid feeding room, three from the front barn spaces, and two from the milking parlor to the east. The two outer south doors lead to the west bay and central bay of the main barn; the central door opens to the alley.

East of the feed room is the carefully designed milking parlor, noted as 16 x 15 feet wide and dominated by the elevated milking stations. Two doors in the south wall provided access for does



Figure 45. Goats on milking stand ready to be milked. Note the fan for the goats. n.d., photographer unknown. (University Library, University of Illinois at Urbana-Champaign, Carl Sandburg Collection Photographs, Inventory number 018-006-022z)

125. 2011 and 2012 photographs taken by the author.

126. Steichen, *My Connemara*, p. 38.

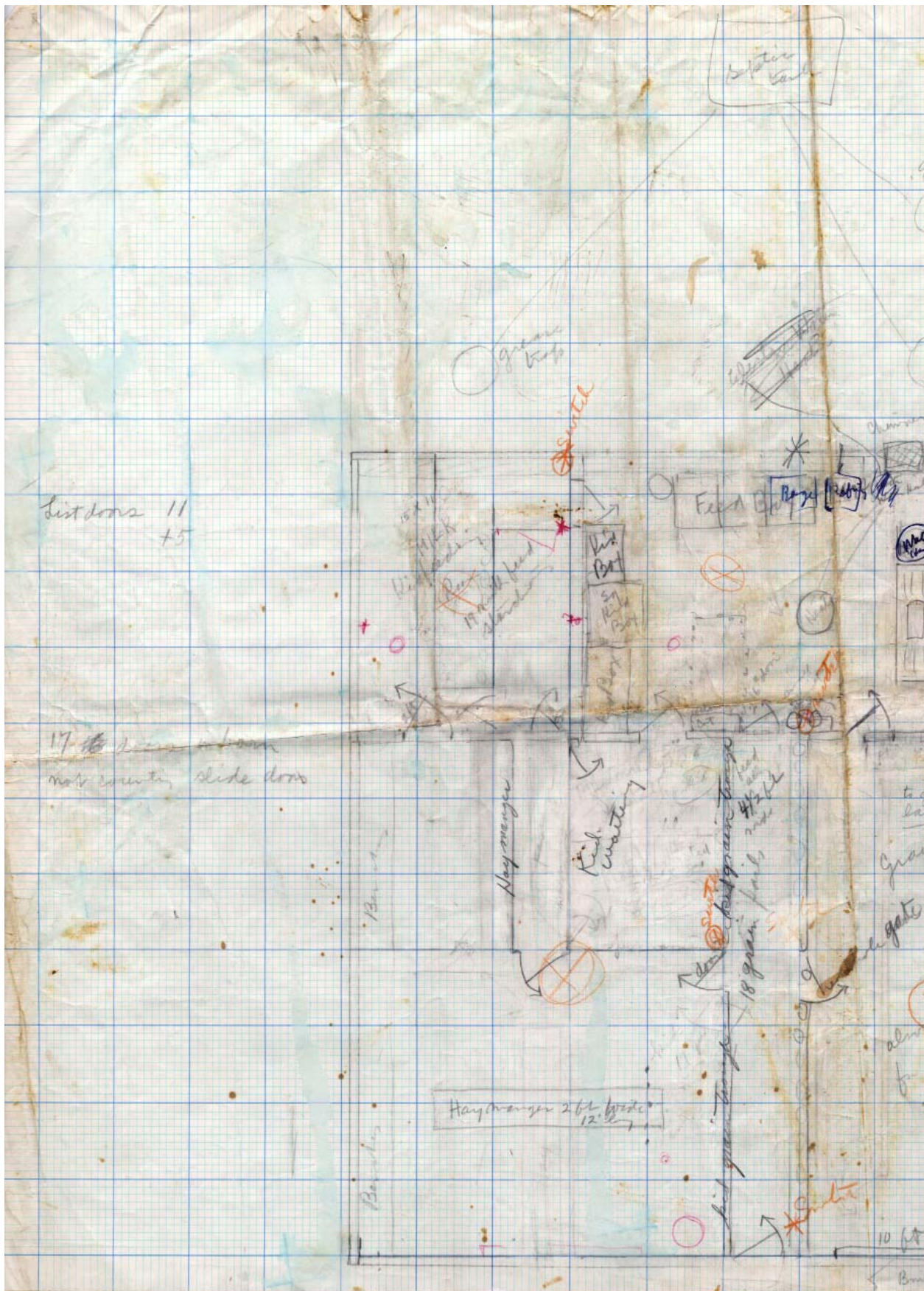


Figure 46. West portion of a sketch showing proposed changes to the Smyth barn to accommodate goats, drawn by Mrs. Sandburg and Helga, 1945. (Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL71422.)

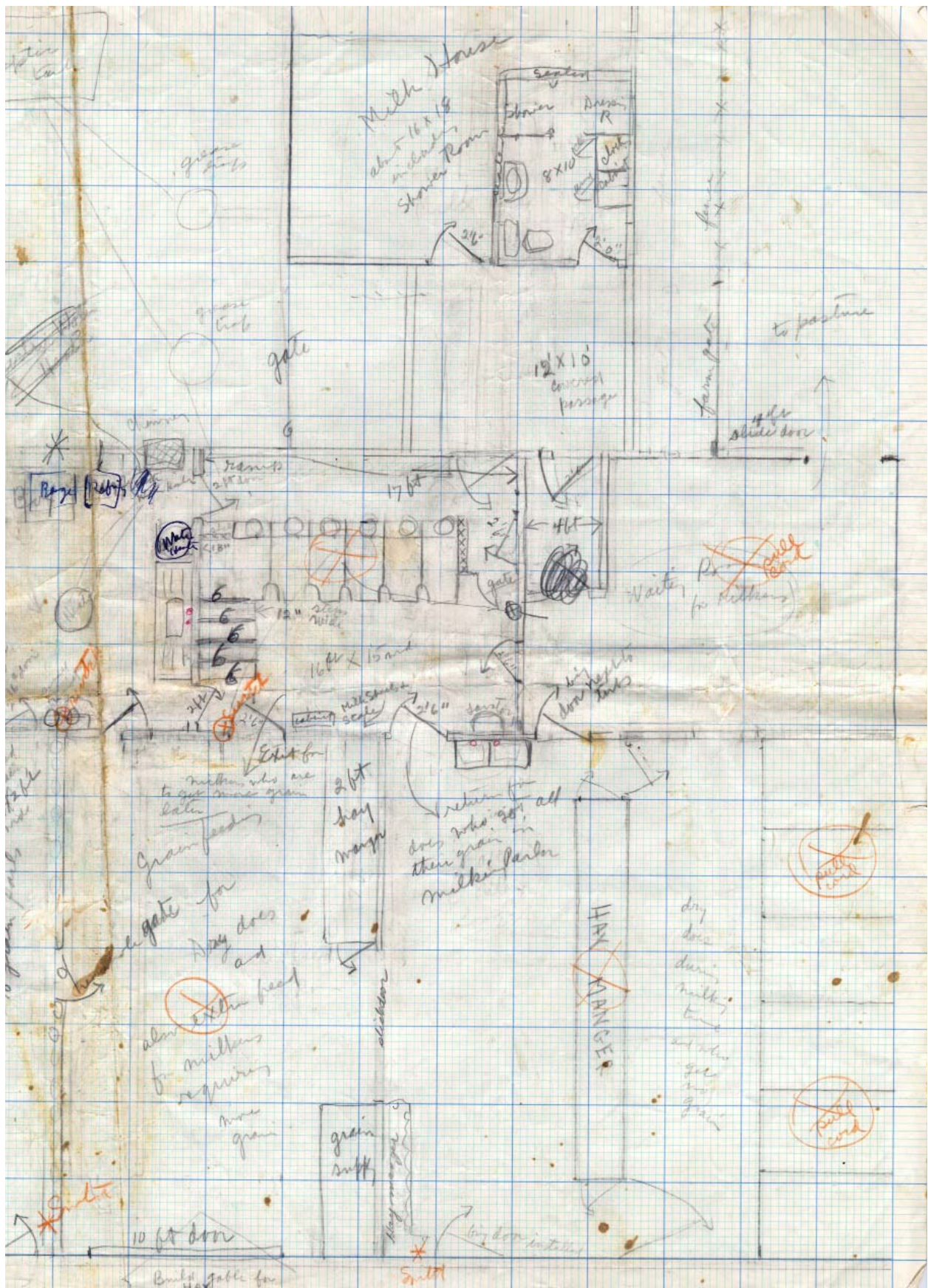


Figure 47. East portion of a sketch showing proposed changes to the Smyth barn to accommodate goats, drawn by Mrs. Sandburg and Helga, 1945. The milk house and walkway to the north behind the barn were not built as drawn, but significantly redesigned before construction. (Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL71422.)

from the front bays of the barn. ‘Steps 12” wide’ are shown along the west wall leading to the platform. Six does climbed the ramp at a time, and stood on the milking platform, their heads in stanchions as they ate, and the workers standing behind in the six cement arcs designed for milking.

North of the platform is shown the worker area where feed was dispensed, indicated as seventeen feet from east to west with a sloped threshold at a two-foot western doorway to the feed room. A gate just east of the platform separates the goat area from the worker area. Along the south wall are noted a lavatory, “milk sheets and scale,” and a cabinet, probably the medicine cabinet. The milk sheets refer to the charts for daily recording of milk production. Later, a double shelf there held a clock and Helga’s oft-mentioned radio that provided music for the goats during milking.¹²⁷

The sketch shows a 2’6” door in the east wall opening to a small four-foot-wide closet, unlabeled but shown on a later milk house plan as a coat closet (*Fig. 70*). Exterior doors on the north rear wall of the milking parlor and machinery closet open to a wide covered passage noted as 12’ x 10’ and leading to a milk house. These elements are unlike the passage and building later constructed.

The milking parlor was built much as sketched and is depicted frequently in Sandburg photographs, often for press reports of Carl Sandburg though he spent little time there. A 1951 photograph shows the room in use. A hinged wood flap covering the head stanchion is folded down to prevent the goats from leaving; one flap is missing. Wood feed barrels and containers of molasses are along the back wall, and a stenciled sign on the door to the feed room reminds, “Shut Door Every Time.”

The easternmost of the four back rooms is not detailed in the 1945 sketch plan, labeled simply “Waiting Room for Milkers,” and including a “big door next to tubs” and a second doorway leading to the east bay of the barn. A four-foot slide door is shown in the north wall leading to the pasture; however, a smaller pedestrian door was built instead.

127. Interview, Helga Sandburg Crile, 22-23 June 2006. Milk charts are in Doc. Box F.O.2 [Mrs. Sandburg’s Farm Office files], CARL92898.



Figure 48. John Carl and Carl Sandburg in the worker section of the milking parlor while goats are milked, 1951. Feed bins and molasses are along the back wall. One of the wood flaps covering the head holes is missing; the other is down to prevent the goats from leaving the stand. (CARL 3000-01-37P)



Figure 49. Curious goats in milking stand. n.d., photographer unknown. (University Library, University of Illinois at Urbana-Champaign, Carl Sandburg Collection Photographs, Inventory number 018-006-022aa)

The sketch also explains the intended uses and traffic pattern in the bays of the barn. The door between the milking parlor and the central bay is labeled “Exit for milkers who are to get more grain later.” The bay is labeled “Grain feeding for Dry does and also extra feed for milkers requiring more grain.” The grain supply bin is in the southeast corner.

Goats apparently were not fed in the east bay. The 2’6” door from the milking parlor to the east bay is the “return for does who got all their grain in Milking Parlor,” and the eastern area of that bay is assigned to “dry does during milking time and who get no grain.”

The west bay alone was not associated with milking, but instead held kids as they were directed north to the kid feeding room. A pen in the northeast corner of that bay is labeled, “kid waiting,” and three doors lead from the bay to their feeding room.

The actual barn conversion adhered closely to the sketched plan. In September 1945, Mrs. Sandburg made arrangements with Joe Anders, owner of the largest contracting company in the Hendersonville area in the mid-1940s.¹²⁸ Anders worked on both the house and the barns; many of his bills include charges for several buildings, often not specified.

Mrs. Sandburg’s letters to Anders in October and November 1945 provide some information on work completed on the barn before the move from Michigan. The roof of the “lean-to,” again, probably the Smyth west shed, was to be replaced, “and this is one thing that must be done before we can move in with our goats. And one other thing must be done, namely the barn cleaned and whitewashed inside.” In early October, she also asked that Ulysses Ballard and two helpers “remove all the manure from the big barn. . . . There are at least 18 inches of muck and manure where the steers were kept. . . . Then the barn will have to dry out, get whitewashed, and the loft floor jacked up before it will be safe to store the winter supply of hay in the loft.”¹²⁹

She added that she, perhaps with Helga, would arrive in Hendersonville on October 15 for “further consultation” on the house and barn.

The trip apparently led to changes in the plans. On November 5, after returning to Michigan, she wrote,

We wish you to go ahead with the roof on the barn, but don’t do the plumbing work to bring water to the places marked, as the barn plan has been changed somewhat. Helga has changed the place of the partition for the milk room, making it smaller – referring to the room that is to be sealed for milking parlor. She will send you a new plan soon, as you probably must know where the partitions are to be before you can go ahead with the roof – as the partitions give support.¹³⁰

128. Barnwell interview. Barnwell’s father William Barnwell, a carpenter, worked for Anders. The September date is from Wallace, p. 10.

129. Mrs. Sandburg to Anders, 5 October 1945, Doc. Box F.O.2, CARL74126 folder 2.

130. Mrs. Sandburg to Anders, 5 November 1945, Doc. Box

The revised plan for the milking parlor was not found in park archives; however, a later plan for the milk house behind the barn shows a portion of the milking parlor, now with a ramp at the east end of the milking stand, and the adjacent closet labeled for coats (*Fig. 70*).

Some of the gates and doors in the barn were sent from their Michigan farm, though their locations in the Connemara barns are not known. In the same November letter, Mrs. Sandburg wrote that a box car would leave Sawyer, Michigan, on November 12th or 13th and arrive in Hendersonville on about the 15th. Though filled mainly with furniture and about 400 cartons of books, “the box-car load will also have. . . partitions with head holes for the goats’ hay manger, also gates, doors, kid-boxes for the barn. You will know what is for the barn.”¹³¹ The locations for several of these items were identified in the sketch.

The goats would arrive quickly, leaving Anders little time after the arrival of the box car. On November 14, Mrs. Sandburg wrote that she would “leave with the goats in a few days, and Helga will drive down later.” She also informed Anders that Helga was sending an order to the Farmers Federation to deliver two tons of baled straw, and asked that Mr. Ballard, the caretaker, put it in the hayloft.¹³²

Apparently Anders completed the roof work before receiving the November 5 letter, for in the letter of the 14th, she adds “As to the barn, since the roof is done, we will wait to alter the partitions when I arrive [with the goats in a few days], as we will not need to use that part of the barn for some time. It will be easier to plan the changes on the spot.”¹³³

She continued:

The important thing to provide now is a place all ready for the goats when they arrive perhaps the end of this week. For this purpose one section of the barn must be ready, with tight walls and door free from drafts. Helga thinks that the west side of the barn where the old horse stalls were divided into pens would be the most suitable. If

F.O.2, CARL74126 folder 2.

131. Ibid.

132. Mrs. Sandburg to Anders, 14 November 1945, Doc. Box F.O.2, CARL74126 folder 2. The Farmer’s Federation, Inc., was in Hendersonville at 325 Seventh Avenue East; *Miller’s Hendersonville, N.C. City Directory [1945/1946]*.

133. Ibid.

the pen sections are still there, then leave them there. If they are torn out all right too. Please have Mr. Ballard bed down this part of the barn with about four bales of straw, as we may arrive with the goats during the night, worn out so want every thing ready. Tell Mr. Ballard to have two bales of hay handy in the central section of the barn, so we won't have to go up into the loft to get hay to feed the goats.¹³⁴

As promised, Mrs. Sandburg arrived at the Connemara barns in late November with her housekeeper, daughter Janet, and a nephew, driving a station wagon pulling "a trailer holding 16 blue ribbon Nubian does." Helga, who remained in Michigan, soon shipped twenty-two more goats.¹³⁵ The rest of the family arrived in December.

Anders was still working on the barn in February 1946, when he submitted a bill for labor on the barn, 600 concrete blocks, and 2 x 4s and 1 x 6s.¹³⁶ The cinder blocks were probably for the milk house behind the barn, though its construction would wait until 1947.

The Rigby-Morrow Company in Hendersonville supplied most materials for the house and barn projects, including lumber, glass, paint, doors, roofing, nails, and cement. Mrs. Sandburg marked a Rigby-Morrow bill of February 1946 to identify items for the barn and those for the house. Barn items included "Esstee Red" paint and eight rolls of "red slate roofing" for the barn complex. This was asphalt roofing surfaced with red chipped slate, perhaps for the rear shed.¹³⁷ The bill included 600 bricks, flue lining, and lime apparently for construction of the chimney at the back wall of the barn.¹³⁸ Additional paint was bought from Starnes Paint and Wall Paper Company in Hendersonville.¹³⁹

Electrical work was carried out by Electric Service Company of Hendersonville, who in January 1946 connected the water heater in the barn, in February

"move[d] wires to barn," and in March repaired lights in the barn.¹⁴⁰ All of the buildings in the barn complex were lighted with electric lights except the corn crib and the small shed behind the cow shed.¹⁴¹

Work continued into the spring. On March 8, Helga wrote in her 1946 journal, "Installed barn ventilator[s]," probably referring to two metal ventilators on the roof.¹⁴²

A footed bathtub was removed from the main house during renovations, and placed along the east fence of the barnyard for use as a watering trough.

The Project Completed

Perhaps the first of the Sandburgs' abundant photographs of the barn is a June 1946 image of a horse looking out of a newly-expanded window. The small cow windows of the Smyth barn have been enlarged, and at least one is glazed with a two-pane sash. The barn has been painted a deep color, most certainly the "Esstee red" purchased by Anders and seen in later color photographs. The Sandburgs used "ranch paint" on all farm buildings to avoid lead content in animal areas.¹⁴³

The Sandburgs added new fences and replaced the Smyths' twisted steel fencing for cows with woven wire fences appropriate for goats.¹⁴⁴ A large fencing project apparently was underway in 1948, when they bought, in May, July, September, and October, specialized fencing and posts from Jim Brown Stores, Inc., of Memphis, and from the associated Brown Fence and Wire Company in Cleveland, Ohio.¹⁴⁵ Locations of the new fencing are not documented.

134. Ibid.

135. Niven biography, p. 572.

136. Bill of 7 February 1946, Doc Box F.O. 2, CARL74126, folder 1.

137. "Elevators Should Sell Roofing," *American Co-operative Journal*, Vol. 11, September 1915, p. 58, http://books.google.com/books?id=4tQwAQAAIAAJ&pg=PA58&lpg=PA58&dq=rolls+%22red+slate+roofing%22&source=bl&ots=U3GkZ2Yr_i&sig=nEiF6GQeeU07rwYf4pY6CC14UM4&hl=en#v=snippet&q=american&f=false.

138. Bill of 26 February 1946, Doc Box F.O. 2, CARL74126, folder 1.

139. Receipts of August 1947, Doc Box F.O. 2, CARL74122.

140. ESC and Anders bills, all in Doc Box F.O. 2, CARL74126, folder 1.

141. Interview, former caretaker Leroy Levi, 19 June 2012.

142. "Connemara Farms Log--1946." CARL 4014, box 1, folder 9.

143. Levi interview, and John Cook, chemist, Color & Supply Co, Lexington KY, telephone interview, 20 June 2012. Lead-free ranch paint was popular for horse barns and other animal buildings. Technologies developed during and after World War II began to replace leaded pigments with linseed oil and alkyd resins. A dark red paint was mostly natural iron oxides, but lead remained prevalent for increased opacity in whites and light colors. The lighter color of the Smyth era suggests the use of lead paint.

144. National Register Nomination Amendment, 1995, pp. 8-21.

145. Receipts, Doc Box F.O. 2, CARL74122.



Figure 50. Eastern front of the newly-painted barn in June 1946, showing enlarged glazed windows. (CARL 2659, from photograph by June Glenn, Jr., with permission)

A 1949 photograph shows the south side of the west shed fully weatherboarded above its stone foundation. By 1956, two or more lower boards were missing or removed. Later, a row of five or six weatherboards was removed from the wall immediately above the foundation, probably to provide light and ventilation to the shed. The Sandburgs used the north end of the shed for tool storage; the south for goats.¹⁴⁶

Also visible in the 1949 photograph are the double doors of the wide west opening. The doors have been partially infilled and redesigned to hold three windows and a pedestrian vertical-board door.

A ca. 1954 photograph of Mrs. Sandburg shows changes made to the eastern side of the front façade, probably during the 1945-46 work. The central sliding door, which hung from an overhead track during the Smyth era, has been removed and replaced with large side-hinged double Dutch doors, the same height as the previous door; the unused track remains. Above is the new through-the-eave gable dormer with its board door opening to the loft. The two-pane sash of the enlarged front windows are open with the top leaning inward, Hopper-style. A doorway with six-panel residential door has been added east of the main doors.



Figure 51. West end of barn showing full weatherboarding on front side of west shed, and changes to the wide doorway, 1949. (CARL 3000-11-28P)



Figure 52. Barn showing changes made by the Sandburgs by about 1954, including the central dormer to the loft, hinged double Dutch doors at the center, new pedestrian entrance with six-panel door, and enlarged and glazed windows. The wall opening to the loft has not yet been added above the eastern windows, and the track remains above the central doors. (CARL 3000-04-04P)

146. Levi interview.



Figure 53. Enlarged portion of 1956 panorama of the barnyard looking north. The six-panel door has been cut to create a Dutch door, and construction of the new loft opening is underway. (CARL 3003-2.3-1)

This may be an original door removed from the main house and stored during the Smyth renovations of the 1920s, then in the 1940s placed in the barn by the Sandburgs, or it may be one of the doors brought from Michigan.¹⁴⁷ The window and door surrounds and the paneled door are painted the same or a darker color than the weatherboards. The barn has a metal roof, and the central dormer is the only visible opening to the loft.

The 1956 panorama of the barnyard shows changes made after the ca. 1954 photograph. A loft opening is being cut into the eastern end of the front façade above the level of the windows. It appears to be shrouded to protect from weather during construction. Other changes have been made as well. The surrounds of the front windows are painted white in contrast to earlier photographs. The six-panel door just to the right (east) of the central doors is hinged on the left and has been cut in a Dutch-door style.

Addition of the eastern loft opening may have corresponded with the increase in hay needed to feed the growing herd, and the purchase of an automatic baler. Before this opening was added, trucks brought bales from the field to the front of the barn, where they were attached to the large central pulley and hoisted into the loft. The job was made easier when the lower eastern opening was cut. Three men loaded the loft, one throwing

a bale from the truck to another standing on an interior platform built at the opening, who threw it to a third who stacked it. This assembly-line system using the new opening was faster than the pulley system at the central dormer.¹⁴⁸

In the early 1950s when Frank Mintz was farm manager, the heavy load of hay in the loft caused parts of the ceiling to dip or collapse, despite Joe Anders' 1945 efforts to support the floor. Local carpenter Sheridan Fisher jacked up the floor and installed beams supported by round posts. These are centered at each of the west and center bays in a north-south line; in the larger east bay the added posts run east-west.¹⁴⁹

A 1971 photograph taken before NPS rehabilitation efforts shows some of the changes made by the Sandburgs after 1956. The track above the central doors has been removed. The left-hinged Dutch-cut six-panel door to the right (east) of the central entrance has been replaced by a Z-framed Dutch door matching the center doors and hinged on the right (*Fig. 44*).

The dairy operation remained strong in the early 1960s, but wound down until the Chikaming herd was disbursed in 1967, the year Carl Sandburg died. The transfer of Connemara to NPS was made in 1968.

147. Jones, *Main House HSR*, p. 113.

148. Levi interview.

149. *Ibid.*

The National Park Service

NPS work on the main barn began in June 1972, just months before the September return of goats to Connemara. Photographs taken in 1971 and 1972 show the barn needing repairs and paint. Only two of the four front windows retain their central muntins, and it appears that glass remains in only one sash. Several weatherboards are broken or no longer provide consistent wall cover, and upper weatherboards in some locations show significant staining, probably from misaligned or leaky gutters. Water cascading from a missing downspout at the southwest corner of the barn has damaged the weatherboards of the south side of the west shed as well as the stone retaining wall at that location (*Figs. 44 and 61*).



Figure 54. Barn in 1971 before work began, showing overall condition and damage from missing downspout. Tom Gray, photographer, NPS. (CARL 4009-2-1-G-110)



Figure 55. Front façade of barn shown "prior to restoration," 2 June 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-17-05P)

The joists and weatherboards of the south side of the west shed were replaced in July 1972. A photograph of that work shows also that the bottom three weatherboards of the adjoining south barn wall were missing. By spring 1974, the southwest downspout and front boards had been replaced, and the west shed painted.

At an unknown date, the sill of the central loft opening was replaced, as evidenced by comparison of today's sill with photographs taken in 1971.



Figure 56. Sill of center dormer and small strip of wood beneath, shown in 1971. Tom Gray, photographer, NPS. (CARL 4009-2-1-G-61)



Figure 57. South end of west shed showing new joists and weatherboards in July 1972, still unpainted. Photograph is labeled both "prior to reconstruction" and "progress of rehabilitation." 11 July 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-17-06P)



Figure 58. Southwest corner of barn and west shed photographed spring 1974 “to show deterioration,” probably in preparation for repointing of the stone wall and foundation. Downspout has been replaced, west shed has been painted, and some cleaning of stone has been completed. Ron Thoman, photographer, NPS. (CARL 4008-17-23P)



Figure 59. Ron Ingles shown rebuilding top of chimney at north wall of rear shed, March 1975. The chimney was built by the Sandburgs to serve the stove in the feed room. Stephan W. Jones, photographer. (CARL 4008-17-14P)

The Sandburgs’ wood-burning stove in the feed room was used by NPS employees for many years. In 1975 when the chimney’s draw faltered, NPS employees cut out several bricks in the lower west side to create a hole for cleaning, and rebuilt the



Figure 60. Alexander Carlone, mason, repointing the west wall of the west shed, April 1979. Warren Webber, photographer, NPS. (CARL 4008-17-21P)

top several feet.¹⁵⁰ The stove was later removed as a safety measure. The building remains unheated.

Archaeological excavations were conducted in 1976 west of and behind the barn prior to the proposed installation of a sewer system and drain field. No artifacts were found in any of the seven test pits.¹⁵¹

Additional excavations were conducted in 1979 near the foundation walls; two at the exterior north wall of the rear shed, one along the exterior west foundation of the original barn, and the fourth near the interior north wall of the original barn. Few artifacts were found in the pits and included modern construction materials and coal; no further excavations were conducted.¹⁵² This work was conducted in April and May 1979 in association with the April 1979 repointing of the tall west foundation wall of the west shed.

In 1981 the barn roof was replaced with a standing-seam metal roof, probably the original roof material and perhaps still in place when the Sandburgs moved to Connemara. Kenner & Son of Colbert, Georgia, conducted the work using Follansbee terne-coated steel supplied by Conklin Tin Plate and Metal Company of Atlanta. The work was approved by NPS Historical Architectural Ron Bishop and the park’s Chief of Maintenance Charles Hamm.¹⁵³

150. Barnwell interview..

151. Pence, *Assessment*, pp. 62-63.

152. *Ibid.*, pp. 63-64.

153. CARL 5015, box 1, folder 1.

The southern end of the east sill was replaced by park employees Austin Ducker and Glenn Barnwell, perhaps in the 1990s, and in 1993, the goat barn was repainted.¹⁵⁴

A 1997 reroofing proposal included “a number of buildings.” Associated documentation shows that damaged boards and “tin roofing” were replaced on the back shed of the barn in 1998, the work conducted by Gary Morgan of Arden, North Carolina, at a cost of \$500. According to former NPS maintenance worker Austin Ducker, the 1981 roof of the main portion of the barn also was replaced at that time or later. He and Glenn Barnwell replaced rotten boards while a contractor installed the roof.¹⁵⁵

Daily use of the barn by goats, staff, and volunteers was causing damage to artifacts. The electric stove was removed from the feed room by NPS perhaps in the 1980s.¹⁵⁶ In July 1996, four sections of a Sandburg wood stanchion for feeding kids were removed from the barn and stored in the Museum Preservation Center.¹⁵⁷ The three-part feed bin was removed when new bins were built—four grain compartments with an almost level top and drawers beneath to better meet the needs of the current goat operation. The medicine cabinet was also removed. The items were to be “preserved as museum objects” as long as the room, which was not open to the public, was used for the living farm activity. It was noted that the items could be returned to the room in the future if desired.¹⁵⁸

By 1999, daily use of the interior loft ladder by volunteers was seen as a safety concern, and a proposal was made to extend the ladder into the barn loft to increase its 18-inch height. A file note of January 22, 2002, states that the change, though approved by the NPS regional office, was never carried out.¹⁵⁹

154. Ducker interview; also CARL 5023, box 2, folder 1.

155. CARL 5023, box 2, folder 1; Ducker interview.

156. interview, Janine Donovan, 19 June 2012.

157. A seven-compartment stanchion feeder was removed to the MPC in 2004. CARL107101 and 109252.

158. After-the-fact Assessment of Actions form, CARL 5023, box 2, folder 1. The white feed bin with slanted top supported on four legs with three top-hinged doors was removed from the barn in 2000, catalogued as CARL109561 in 2002, and stored in the wood shed (HS 6). The cabinet was catalogued in 2002 as CARL109570 and stored in the Museum Preservation Center (MPC).

159. Compliance documents and photographs, CARL 5023, box 4, folder 1.



Figure 61. Feed bins added in the 1990s when the slant-topped wood feed bin was removed, shown in 2012.

Electrical connections to the goat barn and adjoining milk house were upgraded in the autumn of 1999. Duke Power provided the primary distribution work. New lights were installed in the barn, as well as a branch circuit, disconnect switch, and panel to replace the panel at the front of the barn. Though porcelain sockets were proposed, plastic sockets were installed and remain in use today; earlier porcelain sockets were retained in areas where no improvements were made.¹⁶⁰

In 1999-2000 a contractor installed a sprinkler fire suppression system throughout the barn complex. This was a continuation of a fire suppression system proposed initially in 1986 when the house complex was completed; however, installation in the barn complex was delayed by a shortage of funds. The alarm portion of the system was manufactured by Simplex Time Recorder Company.¹⁶¹

The water system also was updated. Spring water supplied the barn and barnyard until 2001 when the system was determined to be unsafe to visitors and employees. New water lines were laid to connect the barn to the existing city water line. New “sink and lavatory” were proposed for the feed room, replacing the existing fixtures, which were stated, in error, as not original in documents and photographs prepared for Section 106 review. It appears this change was not made; the early Sandburg sink remains in place.¹⁶²

160. CARL 5023, box 3, folders 1 (June-July proposal for jelly-jar globes) and 3 (August porcelain proposal); 2012 physical inspection.

161. Comments, CARL Chief Resource Manager Warren R. Weber, 27 May 1998; CARL 4029, box 1, folder 10. Simplex later became SimplexGrinnell.

162. Compliance documents; CARL 5023, box 4, folder 2.

An initial plan to run the new water line through the horse barn and goat barn was revised in 2001 to route around the buildings and to avoid trenching in undisturbed locations. The final path shown on plans routes north through the barnyard, turns east near the buck kid quarters, then north along the east side of the horse barn in an area said to be previously disturbed, then west under the passageway between goat barn and milk house, and north to connect to the milk house bathroom, using existing connections and pipe chases to existing fixtures. A second water line was proposed to run below grade from the milk house to the barn next to the chimney, then up along the chimney to enter the building “at the proper height to pass over the existing interior door in the partition wall between the Milking Room and the Feed Room.” Plans were prepared by NPS Engineer John Gopaul, P.E., of the Facility Management and Engineering Division in Atlanta; the work was conducted by Summey Plumbing of Hendersonville.¹⁶³

The work had unintended consequences. Two systems were in place: city water for workers and visitors, and spring water for the goats. Each system had its own spigots; however, shortly after the work was completed, city water was mistakenly given to the goats. The chlorine killed digestive bacteria, causing dangerous health risks. Corrective procedures were quickly put in place.¹⁶⁴

The safety of staff and visitors and of the goats was addressed again in 2002. Raccoons had been in the barn and loft for a year or more, “causing damage and leaving a mess,” but NPS removed them when several were found to be sick and dying; documents do not explain the means of removal.¹⁶⁵

Encapsulation of the Barn

An expensive and damaging project was conducted in 2002-04 to mitigate the effects of lead paint. The goat barn and horse barn were encapsulated with an elastomeric paint. Although both the Sandburgs and NPS used lead-free paint on all farm buildings,

the concern apparently was the use of lead paint by the Smyths and earlier owners.¹⁶⁶

The park’s maintenance crew replaced broken and rotted boards in preparation for the encapsulation process, some on the front of the barn west of the west entrance. The subsequent work comprised removal of loose paint, recaulking of the siding, encapsulating the buildings with elastomeric paint, repainting them, then removing and replacing contaminated soil at the base of the two barns and inside the horse barn. The project was estimated at over \$70,000 and exempted from Section 106 review when it was approved under a Categorical Exclusion as cyclic maintenance. Specified products manufactured by Global Encasement, Inc., included GE-IC1 Industrial Cleaner for Surface Preparation on LBP Abatement, GE-15 elastomeric 100% acrylic caulk, LeadLock PSN-10 Primer Sealer Neutralizer, and LeadLock GE-40 acrylic top coat. The primer-sealer-neutralizer was advertised to safely seal lead-based paint to surfaces and to stabilize “surfaces that can be only marginally cleaned and where tenacious adhesion is needed.” The specified color was Sherwin Williams Exterior Series A2 Paint – Ranch Red B 46 RA 5.¹⁶⁷

Project work did not follow specifications and caused extensive damage; paint was applied sloppily, coated too thickly and in some places running, and applied in previously unpainted areas. Existing paint beneath the coating continued to flake, “allowing moisture to infiltrate and become trapped behind the new coating.” The finish was an inaccurate glossy sheen, clear coats were pink, heat detectors were damaged, sprinkler heads were clogged, and removal of contaminated soil incomplete.¹⁶⁸

Even after correction efforts, the sheen of the final coat remained a problem; a spray coating of Krylon acrylic matte was recommended to reduce the

163. Compliance documents including site plan, trip report 21 September 2001 by Deborah Rehn, Historical Architect, SE Support Office; CARL 5023, box 4, folder 2.

164. Barnwell interview.

165. Environmental Screening Form, Categorical Exclusion; CARL 5023, box 4, folder 1.

166. According to Glenn Barnwell, NPS from the start used only lead free paint in the barn complex.

167. Global Encasement, Inc. product sheets; CARL 5038, box 1, folder 4; color specification in email Joseph V. Martin, Architecture, SERO, to several SERO and CARL staff. Consultations were held with Cole Stanton, technical representative of Fiberlock Technologies who sold the paint, a Thermoplastic Elastomeric Copolymer; CARL 5023, Box 4, folder 1.

168. NPS email communication with Christopher E. McDonald, National Sales Manager, Global Encasement, Inc., 2 October 2003; CARL 5038, box 1, folder 4.

sheen “and therefore remove highlights from any of the areas where the coating remains visibly too thick.”¹⁶⁹

The rear and side stone foundation walls received an overspray of the clear, though pink-tinted, adhesive primer. The result was a “perpetually tacky coating” on the foundation walls. NPS proposed to blast the stone with a mild abrasive, perhaps corn meal, with the hope that the tint of the primer would also be removed.¹⁷⁰

For several months, the park, several divisions of NPS, the Harper’s Ferry Center conservation labs (HFC), and the contractor were involved in remedial efforts; however, inspections of the contractor’s work by NPS in January 2004 found continued deficiencies and errors. The overspray on ceiling boards of the main barn had been partially removed, “to a marginally acceptable level. . . . The bottom of the boards is cleanly coated, and unobtrusive, however it is not likely that this board was previously coated. I believe we are bound by the Secretary of Interior’s Standards to restore it to its original condition.”¹⁷¹

The inspection report notes the need for further clean-up on the ceiling, rafters, and sprinkler pipes. The report also addresses the exterior, which was found “generally acceptable. . . it does appear that it will effectively encapsulate the lead paint (except what the goats eat). . . .”¹⁷²

NPS emails of June 2004 recommended that remaining contaminated soil between the goat barn and horse barn be removed at a depth of six inches and replaced as the better alternative to installing a permanent barrier and a public notice regarding the contaminated area.¹⁷³

Other repairs over the years included routine replacement of troughs damaged by active goats,

and frequent replacement of rotten boards in the milking parlor.¹⁷⁴ NPS employees have repointed the stone foundation of the barn and its shed additions on an as-needed basis.¹⁷⁵

Today the barn houses a small herd to provide visitors with an understanding of Mrs. Sandburg’s famous Chikaming breeds. The center and east portions of the barn and the milking parlor are open to the public; the left (west) and rear are work rooms for staff and volunteers.

Milk House (HS 16-A)

A milk house apparently was anticipated before the Sandburgs’ move to Connemara. In an October 1945 letter to contractor Joe Anders, Mrs. Sandburg asked for estimates on his work, but added, “Don’t give estimate on Milk House--as that is separate item and can wait till spring. But state whether or not our bill for materials includes lumber purchased for the milk house rafters--that you needed for scaffolding.”¹⁷⁶ Additional materials apparently were bought in advance in February 1946 when Anders submitted a bill for 600 concrete blocks.¹⁷⁷

The milk house was constructed in two parts, the first in 1947 in accordance with a plan worked out by Helga and Mrs. Sandburg. In the park archives is their hand-drawn sketch of the proposed building. A first sketch, preliminary and not built, was included with their 1945 drawing of the barn, and shows the outline of a “Milk House about 16 x 18 including Shower Room” (*Fig. 53*). The larger area of this design includes no interior floor plan; however, attention was given to the plan of an 8’ x 10’ full bathroom in the southeast corner, directly north of a wide covered passageway from the barn and containing toilet, sink, shower, dressing room and “clothes cabinet” for used and clean clothes. The room’s two interior partitions are noted to be “sealed.” The covered passageway at 12’ x 10’ is considerably wider and in a different location from the final design.

169. Email message from Joe Martin, Architecture Division, NPS-SERO, to staff at Carl Sandburg National Historic Site (CARL) and the NPS Southeast Regional Office (SERO), 31 December 2003; CARL 5038, box 1, folder 5.

170. Progress note memorandum, Joe Martin, NPS Architecture Division, to Superintendent Connie Backlund and Chief of Maintenance Johnnie Wright, draft of 16 January 2004; CARL 5038, box 1, folder 5.

171. *Ibid.*

172. *Ibid.*

173. Email Martin to NPS Contracting Officer Demetria Smith-Wilson, 7 June 2004; CARL 5038, box 1, folder 5.

174. Ducker interview.

175. Barnwell interview.

176. Mrs. Sandburg to Anders, 29 October 1945, Doc. Box F.O.2, CARL74126 folder 2.

177. Bill of 7 February 1946, Doc Box F.O. 2, CARL74126, folder 1.

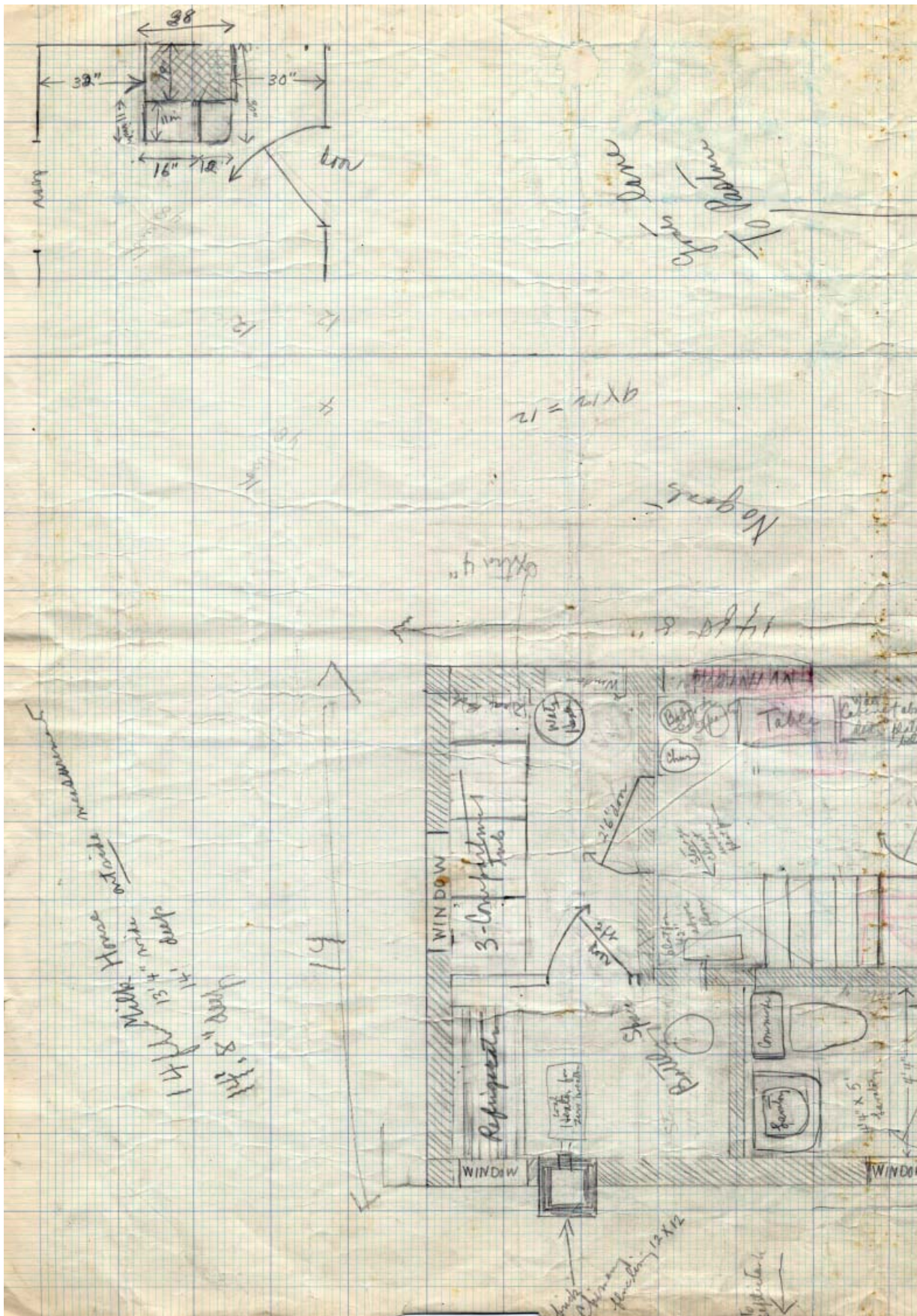


Figure 62. North portion of a sketch showing second design for milk house. Drawn by Mrs. Sandburg and Helga perhaps as early as 1945, though the building was constructed in 1947. (Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL71422.)

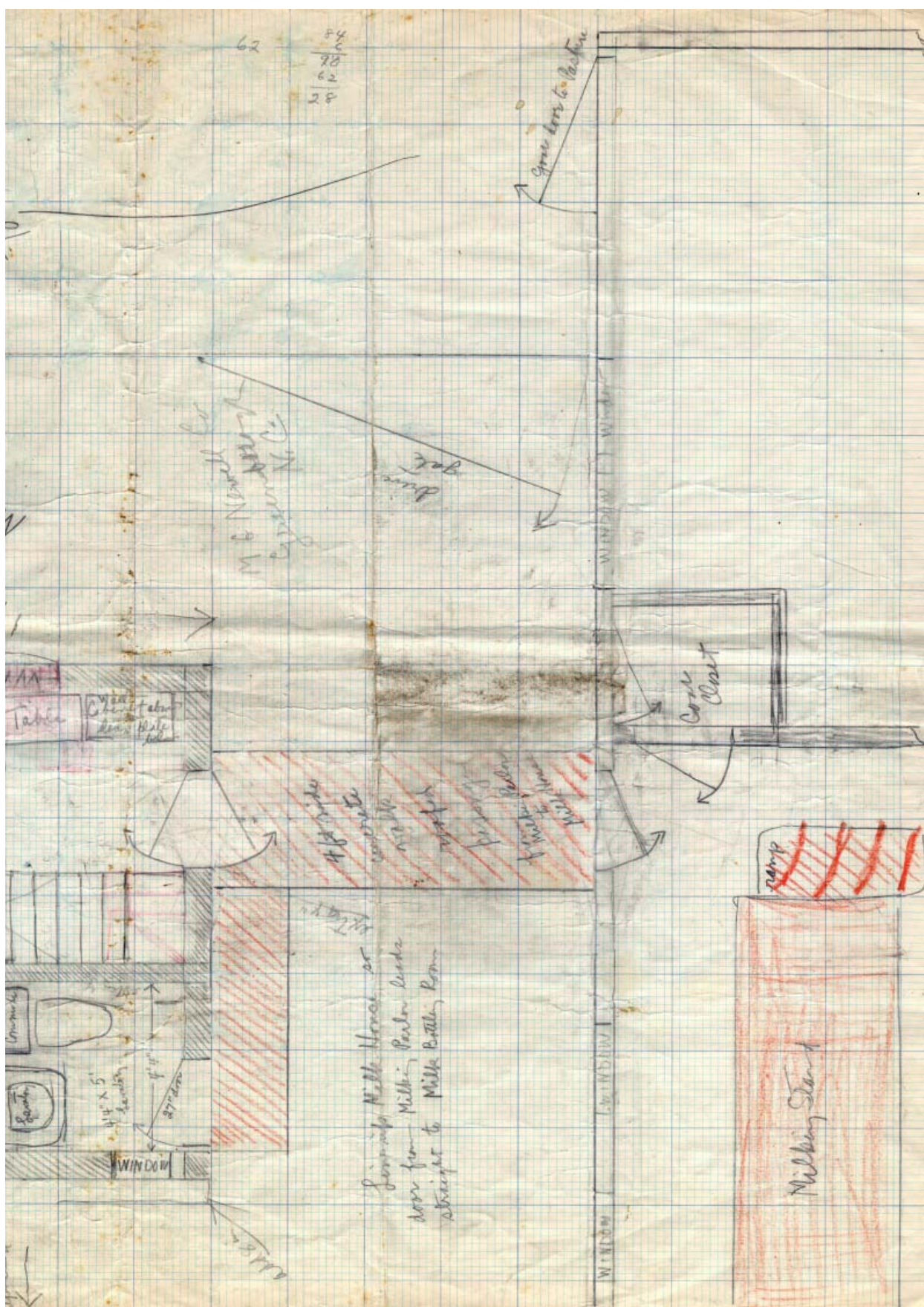


Figure 63. South portion of a sketch showing second design for milk house. Drawn by Mrs. Sandburg and Helga perhaps as early as 1945, though the building was constructed in 1947. (Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL71422.)

In contrast, a later sketch of the milk house is more comprehensive and reflects additional study. It bears little resemblance to the earlier sketch and may have been designed after research into modern milk house plans. Mrs. Sandburg's files in the park archives include booklets of recommended layouts for a milk house. A flyer titled "Plans and Costs for a Grade 'A' Goat Dairy Milk House" includes a floor plan and two elevations of a small milk house, with itemized costs of parts of the building, recommended utensils and caps. The plans were distributed by Purina's headquarters in St. Louis and approved by the Missouri State Board of Health, but intended for use in other states. Another pamphlet was published by North Carolina State College. The milk house built by the Sandburgs does not copy, but may have been influenced by these plans.¹⁷⁸

The Sandburgs' second sketch is detailed, with considerable notations and the configuration of both interior and exterior features. Like the earlier barn drawing, the sketch is drawn in pencil with changes and additions in orange and red pencil. Set behind the barn, the building is entered from a "roofed passage from Milking Parlor to Milk House" with a "4 ft wide concrete walk." A note instructs the builder to "line up Milk House so door from Milking Parlor leads straight to Milk Bottling Room."

The drawing shows four rooms in the milk house with two entrances on the south side. In the southwest corner is a small half-bathroom with its own entrance and no connection to the interior processing spaces. Noted as 4'5" wide by 5' deep, it shows a sink and toilet on the north wall, a window in the west wall. No shower is provided, although a shower room was a significant feature of the first, rejected sketch.

The main door of the milk house opens from the passageway into the southeast room. The purpose of the room is not identified although its contents are labeled. Along the west wall are steps leading to a platform labeled as 42 inches above the floor. The plans call for a "storage closet under platform." An unlabeled rectangle representing a milk strainer is drawn over the platform with lines indicating a pipe passing through the west wall to the bottling area.

178. Doc. Box F.O.2 [Mrs. Sandburg's Farm Office files], CARL74123.



Figure 64. A Babcock Test Centrifuge (Wikimedia Commons, <http://en.wikipedia.org/wiki/File:BabcockTester2.jpg>)

Along the east wall is a "wall cabinet above, [illegible] plate below," and a table beneath a window that appears to have been added to the initial drawing. A "Babcock test," a cream separator, and a butter churn were to be placed in the northeast corner of the room. The Babcock Test Centrifuge was a device designed to determine the fat content of milk.¹⁷⁹

In the north wall is a 2'6" door hinged on the left leading to the back room. In that room beneath a window on the north wall is a "3-compartment tub." A drain rack is on the east wall, and a water heater is placed oddly in front of an east window.

The plan shows a two-foot door hinged on the south giving access to the fourth room, a north-south rectangle in the northwest corner of the building. A storage cupboard initially drawn along the south wall was replaced by the "Bottling Space," a circle indicating the location of the equipment. A long refrigerator case takes up most of the north wall. On the west wall is shown a window and a "brick chimney 'with' flue lining 12 x 12" connecting to a "wall heater for zero weather."

A penciled note in the margin reads, "M. G. Newell Co, Greensborough, N.C.," a company that sold "Machinery and Supplies for the Milk and Ice Cream Industries," including stainless steel sanitary equipment.¹⁸⁰

179. Paynesville Area Historical Society, <http://www.paynesvillearea.com/community/histsociety/dairycows082102.html>.

180. The company remains in business today. M.G. Newell Corporation website, <http://www.mgnewell.com/about/index.htm>.

It is unclear who built the milk house. The October 1945 letter suggests that Joe Anders was expected to be the builder; however, former caretaker Leroy Levi reports that it was constructed by local builder Sheridan Fisher. Perhaps Fisher was employed by Anders.¹⁸¹ The initial one-story building followed closely the Sandburgs' second hand-drawn sketch with only slight changes—the shifting of door and window in the bathroom, and a window in the northeast room. The building was constructed of rusticated concrete blocks as an aid to sanitation, and the front entrance was connected to the barn's milking parlor by the covered walkway as planned. The small half-bathroom was built as shown. A septic tank was installed in the yard immediately west of the milk house roughly in the location shown on the barn sketch.¹⁸²

The dairy operation soon outgrew the capabilities of the milk house, and additional space was needed. Fisher built a two-story addition at the back (north), connected by a doorway converted from the window in the original north wall. The concrete block of the addition was a near match to that of the earlier section, perhaps reflecting a slight change in design by the manufacturer.

Years later, Helga explained to NPS, "The portion nearest the barn was built first (no attic), as we had a rather limited feeling for the future then and there was room for a separator and milk cooler (not big) on the wall of first room where we bottled etc. And then in the back was the washing up place. ... The tall part was put up after I left in 1951 [sic]."¹⁸³

In another letter, Helga wrote, "We did process milk at the farm, straining, cooling and bottling it in the round quart paper bottles with a hand-capping machine with which we put on the caps. The processing was likely turned over to Kalmia Dairy in 1952 when I left for Washington, although it may have been sooner."¹⁸⁴

181. Levi interview. Fisher and both of his sons have died.

182. An undated receipt on notepaper was submitted by J.C. Saltz for "2 Screen Doors for Milk House @ \$8.00 each," Doc. Box F.O. 2, CARL74122.

183. Helga Sandburg Crile to Superintendent Benjamin H. Davis, 15 October 1979. CARL 4014, box 1, folder 3. Helga married in February 1951 and left Connemara in 1952.

184. Helga Sandburg Crile to Warren Weber, 4 May 1984. CARL 4014, box 1, folder 10.



Figure 65. Paper bottle cap. (CARL 107000)

The rooms of the expanded milk house were arranged for the greatest efficiency of the processes. In the 1947 entrance room, milk was poured into an elevated strainer above the cement platform, then piped through an interior wall to the processor and bottling machine in the next room. "Bottles" were the conical paper containers.

A cream separator was also placed in the building. Unlike naturally-separating cow milk, goat milk requires a separator to make cream. The cream was not sold, but used by the Sandburgs, by the caretaker, and by Levi. Whey, a byproduct of the separation, was fed to the hogs.¹⁸⁵

The larger back room, added after 1951, was for cooling and for washing and drying milk cans and utensils. Storage space for extra cans and other processing equipment was in the loft, reached by an exterior ladder.¹⁸⁶

Helga's daughter Paula Steichen explains,

Each morning and evening the milk was strained into three-gallon cans in the milking room [milking parlor in the barn], and when one was full it was carried into the grey, concrete-block milk house, cooled over cold-water pipes, and then put in huge steel coolers. Handled in sterilized containers throughout the process, the milk was taken every morning to the Kalmia Dairy in nearby Hendersonville, where it was sold in single-use paper containers throughout the

185. Levi interview. The family also made buttermilk, butter, yogurt, and a variety of cheeses, Steichen, *My Connemara*, p. 41.

186. Levi interview.

southeast. . . . The Chikaming herd usually sold all the milk it could produce. There was a steady demand for it for babies or ill and elderly people who could not digest cow's milk.¹⁸⁷

A 1952 hand sketch shows what appears to be a processor which, Helga later wrote, "was used. But not by me."¹⁸⁸

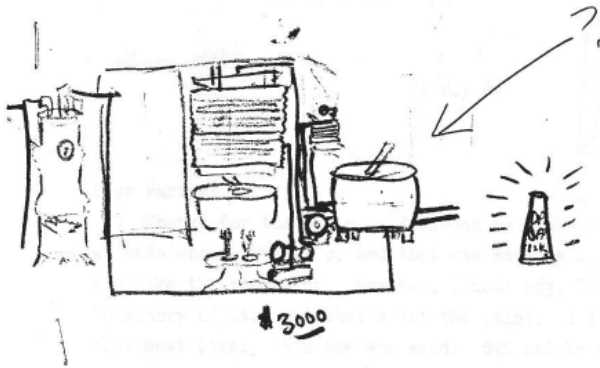


Figure 66. A 1952 sketch of milk processor and conical cardboard bottles. Arrow and question mark drawn in 1984 by Helga. (CARL 4014, box 1, folder 10)



Figure 67. Sandburg processor with bottles beneath. 2012 photograph.

187. Steichen, *My Connemara*, p. 40.

188. Helga Sandburg Crile to Warren Weber, 21 May 1984. CARL 4014, box 1, folder 10.

It appears that the Sandburgs made few changes to the milk house even while equipment was updated. The Park Service also made only few changes, though documentation of NPS work on this building is sparse.

A 1972 photograph shows a portion of the back room as the Sandburgs left it. The double sink is against the north wall, its swivel faucet centered to serve both the right-hand washing sink and the left-hand rinsing sink. Drying racks are on the north wall.

At an unknown date, NPS shifted the sink about a foot to the west, leaving the faucet serving the eastern sink only. The hot water heater was removed and put into storage in the spring of 1974 and replaced by a new heater.¹⁸⁹ The cooler remains in place along the west wall.

The 1976 archaeological excavations conducted before installation of the new sewer system included three test pits west of the milk house. No artifacts were found.¹⁹⁰ In 1979, two test units opened near the north and west walls revealed construction materials; no further testing was conducted.¹⁹¹

Repainting of the milk house was approved in 1995, though this project and repainting of the barn garage were delayed until 1997.¹⁹² Also in 1997, the milk house was among the large group of buildings proposed for reroofing. Park staff was to remove the existing roof, make necessary repairs, and purchase new roofing to match original colors. Some roofs were to be replaced by staff, others by outside workers. The milk house work was not specified.¹⁹³

In the 1990s, maintenance worker Austin Ducker was at the barn when lightning travelled along a fence and struck the milk house. It entered the back room at the cooler, crossed the floor to the sink, then followed the pipe south to the barn's feed room. A telephone repairman was leaning against the sink and, according to Ducker, "he went for a ride." The lightning damaged the milk

189. Typed notes on photograph envelope.

190. Pence, *Assessment*, pp. 62-63.

191. *Ibid.*, p. 64.

192. Assessment of Actions form and note on file folder, CARL 5023, box 2, folder 1.

193. Assessment of Actions form, CARL 5023, box 2, folder 1.

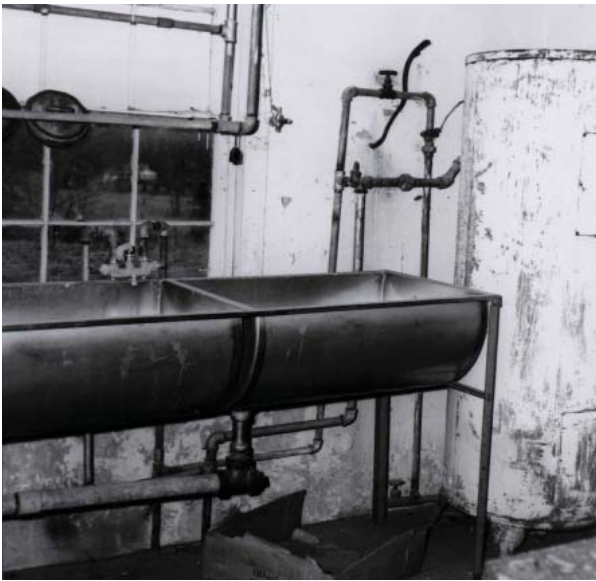


Figure 68. Double sink at north wall of milk house in January 1972. Swivel faucet is centered to serve both sinks. Hot water heater at far right was replaced in 1974. (CARL 4007-43-02P)



Figure 69. Double sink was later shifted to the west (left) leaving the faucet at the eastern sink. 2012 photograph.

house and welded metal pails together. The power surge broke lightbulbs in the barn but did not cause evident damage to the wiring.¹⁹⁴

Electrical upgrades were made to the milk house and barn in autumn 1999, perhaps as a result of the lightning strike.¹⁹⁵

The bathroom remains as built. Although the pipes of the unheated room are drained each winter, the

toilet was replaced after frozen water cracked the original. The sink faucet was disconnected when leaks developed in hard-to-reach drain pipes.¹⁹⁶

Today the milk house is open to the public for self-guided tours, furnished with the Sandburgs' dairy equipment. An interpretative sign on the north wall of the cooling & washing room mistakenly says "Storage Room."

Horse Barn (HS 17)

The horse barn was built for the Smyths' horses and has been changed significantly since then. A Smyth photograph shows the west half of the weatherboarded front façade. A wide door opening, gambrel in shape, commands almost the full width of the façade. Only the left (west) of the double doors is visible; it is of open slats. The center of the upper gable is not visible, though was a typical location for a loft opening.

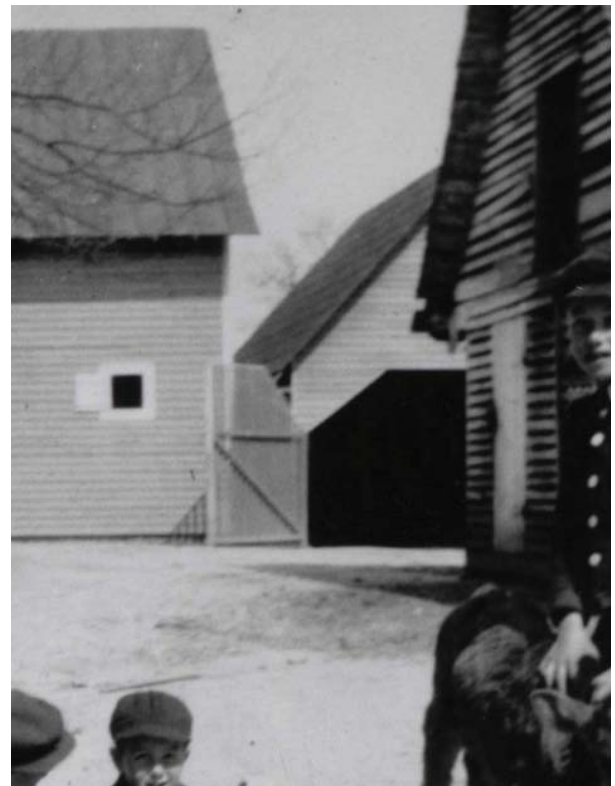


Figure 70. Horse barn during the Smyth era showing wide opening for double doors, ca. 1915. The open western door is slatted. (Enlarged portion of CARL 3001-04-01P, Smyth Family Photograph Collection)

¹⁹⁴. Ducker interview.

¹⁹⁵. CARL 5023, box 3, folders 1 (June-July proposal for jelly-jar globes) and 3 (August porcelain proposal).

¹⁹⁶. Barnwell interview.

The Smyths in later years, or more likely the Sandburgs in their first year, perhaps even by Joe Anders before their arrival, enclosed most of the front with weatherboards and added instead a smaller door just east of center, and a wood ladder leading to a tall central loft opening above. These changes were made by June 1946 when a photograph shows the doorway with a single vertical-board door with center rail. The bottom of the ladder is perhaps ten inches above the ground; whether the loft opening is original is not known. Sheets of pressed metal roofing in a scalloped pattern are clearly visible. A vertical slat gate at the narrow alley between the horse barn and main barn is set several inches above the ground.¹⁹⁷

By 1949, a west gutter and corner downspout had been added, and a section of roof repaired.¹⁹⁸

The Sandburgs kept horses at Connemara from the start or soon thereafter. In early May 1946, about two weeks after the death of a horse named Lightfoot, Helga bought a buckskin saddle horse named Blueberry. She notes in her journal, “Also have pony—Patches—and harness and saddle and bridle.” On May 16 she was trying a chestnut horse named Storm whom she bought and kept at Connemara until his death in 1950.¹⁹⁹ Horses were kept in other barns as well, but two Percherons, Pearl and Major, were stabled in the horse barn; they plowed the fields, pulled the spreader, and handled other heavy jobs.²⁰⁰ Tack also was kept in this barn.

The Sandburgs later used the horse barn for goats, installing wooden troughs along the interior walls. With their taste for practicality, they added a variety of boards at hand to raise stall partitions to prevent the goats from escaping.

Perhaps at the same time, a doorway and covered alleyway were added at the west wall, giving access from the northernmost stall through the new passage to the neighboring main barn.

The vertical-board front door was still in place in 1952; however, a 1971 photograph taken before NPS began work shows changes made by the

197. The photograph identification card in the park archives was first dated ca. 1948, then revised to 6/11/1946.
198. Photograph CARL 3000-11-13P.

199. “Connemara Farms Log--1946.” CARL 4014, box 1, folder 9; Steichen, *My Connemara*, pp. 55-59.

200. Steichen, *My Connemara*, pp. 53, 66.



Figure 71. Horse barn in 1946 showing door, ladder, and weatherboarded front. 11 June 1946. (portion of CARL 2659, from photograph by June Glenn, Jr., with permission)



Figure 72. Horse barn in 1946 showing horizontal sheets of scallop-pressed metal roofing. Electric wires are visible in the photograph. 11 June 1946. (portion of CARL 2659, from photograph by June Glenn, Jr., with permission)

Sandburgs. They replaced that front door with a horizontal-flush-board Dutch door, removed the gate from the alley, and lowered the front ladder or reworked its rungs.²⁰¹

201. The door is shown in a 1952 photograph (Figure 95).



Figure 73. Pearl and Major, the Sandburgs' Percherons, stand in front of the horse barn in 1949, ready for plowing. The gate between the horse barn and main barn is visible. (CARL 3000-44-056P)



Figure 74. Front of horse barn in 1971 before NPS repairs, showing Dutch door, position of ladder, and missing gate. Tom Gray, photographer, NPS. (CARL 4009-2-1-G-101)

NPS work on the horse barn began in spring 1972. Photographs taken during the work show that all front weatherboards west of the door were replaced with new boards. Boards east of the door and those on the gable were retained. The full lengths of the front sill and plate were replaced, as well as one front stud and the sill of the loft window. The scalloped pressed-metal sheet roofing was replaced with 5-V metal. The bottom of the lower Dutch door was cut parallel to grade to allow it to close. A bottom hinge was added and the latch changed.



Figure 75. "View of Horse Barn during Restoration," showing new sill, plate, joists, and upper door sill. The covered passage between horse barn and goat barn is visible in the background. Spring 1972. Gordon Gay, photographer, NPS. (CARL 4008-19-07P)



Figure 76. East side of horse barn and roof "prior to restoration," showing tall four-flush-board lower Dutch door and surround; spring 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-19-04P)



Figure 77. Replacement full-height uncut door on east side of horse barn, and small grassed ramp. 2013 photograph.

At the east side elevation, a Dutch door, which included a tall lower door of four vertical flush boards, was replaced with a single full-height uncut



Figure 78. “Charlie Hamn, NPS Maintenance Superintendent, at the north wall of the Horse Barn near the silo, examining the decay of the siding and sill “prior to restoration;” 29 June 1978. Warren Weber, photographer, NPS. (CARL 4008-19-14P)



Figure 79. Front of horse barn in 2011 showing new slat gate and minor changes to bottom door.

flush-board door of six boards, and the north surround was altered or replaced with a narrower piece. A small grassed ramp was built in front of the door.

In 1978, a large area of decayed weatherboards, and perhaps the sill, were replaced at the back (north) of the Horse Barn near the silo.

Archaeological excavations conducted the next year revealed construction materials near the foundation; no further testing was conducted.²⁰²

NPS installed a new slat gate at the alley entrance, though the gate is taller and lower and its slats wider than those in the 1946 and later Sandburg images.

The metal roof of the horse barn was repainted in 1993, and perhaps the building itself, though little information is provided in files. A photograph shows that the lower section of the west roof, still unpainted, was replaced. Boards close to the ground, particularly in the back, were said to be rotted, needing replacement.²⁰³ Because of this work, the horse barn was probably excluded from the 1997 barnyard reroofing project.

In 1999-2000 an NPS contractor installed a sprinkler fire suppression system throughout the barn complex. System controls were placed in an enclosed area in the horse barn; a small electric heater was mounted nearby to prevent freezing.

The associated fire alarm panel initially was to be installed in the barn garage; however, the park suggested it would be less noticeable in the horse barn. Grot Inc, of Lexington, Kentucky, the electrical cable contractor, advised that temperature changes in the barn garage would be less dramatic, and the panel was installed there.²⁰⁴

Encapsulation

The horse barn was encapsulated during the 2003-04 project described above. Exterior damages were similar to those at the goat barn. The interior of the horse barn was also damaged. Used as a classroom for small children, it was to receive a single application of a GE-60 Clear Surface Coat protective acrylic coating to stabilize residual lead dust. It was “mistakenly applied with a residual pink tint due to contractor error.” Despite several efforts by park and regional NPS staff to remove the pink acrylic overspray, several areas remained

202. Pence, *Assessment*, p. 64.

203. Assessment of Actions form, 1993, includes photographs; CARL 5023, box 2, folder 1.

204. Email Steve Sherwood to SERO Historical Architect Ali Miri, NPS Contract Specialist Georgi Wellington, Park Chief of Maintenance Johnnie Wright, and Superintendent Connie Backlund, 21 September 1998; letter, Kerry Russell, Grot, Inc., to Wellington, 7 October 1998; CARL 4029, box 1 folder 12.



Figure 80. Stall board with hand-painted name and the pink stain applied by error in 2003. 2011 photograph.

of concern. These included a feed trough and a stall board hand painted with the name Pearl, one of the Percherons, by a member of the Sandburg family. Regional NPS staff wrote,

As the areas in question are those hand painted by the Sandburg family, these are valuable cultural artifacts and must be restored. This is a complex problem that will require a detailed knowledge of the characteristics of the coating chemicals applied. After waiting several weeks, the paint manufacturer was not able to assist with this problem.²⁰⁵

A “white underneath” on the board in question appeared to be a whitewash.²⁰⁶ The NPS report continued, “Given the delicate nature of a restoration of an artifact comprised of old paint over whitewash,” the pink-sprayed “Pearl” board was to be removed and shipped to Al Levitan at NPS’s Harper’s Ferry Center labs (HFC) for testing of conservation strategies. No follow-up documents were found; however, the board was reinstalled and retains the pink stain.

205. Attachment to progress note memorandum, Joe Martin, NPS Architecture Division, to Superintendent Connie Backlund and Chief of Maintenance Johnnie Wright, draft of 16 January 2004; CARL 5038, box 1, folder 5. Joe Martin, trip report 8 September 2003; CARL 5038, box 1, folder 4.

206. Progress note memorandum, Joe Martin, NPS Architecture Division, to Superintendent Connie Backlund and Chief of Maintenance Johnnie Wright, draft of 16 January 2004; undated email Martin to Al Levitan, HFC, no date; both in CARL5038, box 1, folder 5; Joe Martin, trip report 8 September 2003; CARL 5038, box 1, folder 4.

Silo (HS 20)

The granite block silo is known to have been built during the Smyth era, certainly by a mason and perhaps with the help of caretaker Ulysses Ballard.²⁰⁷ Its placement so close to the walls of the horse barn and main barn is curious, but with other evidence confirms that these buildings were in place when the silo was built, the mason laying the stones from the interior.

The silo was built with two wall openings facing west towards the rear shed of the main barn, and accessed from each level. A corresponding hole was cut into the lower level of the rear shed of the barn; however, a later interior wall prevents investigation. More telling is a second hole cut into the east wall of the barn loft to access the upper silo opening. The cuts in the loft wall indicate the opening was not an original feature, but introduced into the existing wall when the silo was constructed.



Figure 81. View looking south from the barn's loft window shows the cut edges of barn siding (right) just inches from the silo's granite-block wall. The cuts indicate the loft opening was not an original feature, but made into the existing wall when the silo was built. 2012 photograph.

207. Widow Emily Ballard and son Frank Ballard interviews.

The original height of the silo is unclear, and the roof was removed at an unknown date. No photographs have been found from either the Smyth or Sandburg periods. Sandburg grandson John Carl Steichen recalls strict warnings to avoid the silo as a child because of suffocation, suggesting that the roof remained in place in the 1940s and perhaps the early 1950s. It apparently was removed before the mid-1950s when Leroy Levi was hired; he does not remember a roof. It was most likely a low, conical, wood-shingled or metal roof. The top of the silo was cemented after removal of the roof, leaving no evidence of its connection.²⁰⁸

The silo was built to create corn silage for the Smyths' cows and horses. Silage allowed year-round feeding, was more easily digested by cows, and increased milk production.²⁰⁹ The beef cattle were fed hay and grain. Level ground north of the silo allowed wagons to be backed up and corn loaded into the silo through a north-facing hatch in the roof above the rung ladder. Typically, freshly harvested corn, cut small, was sent up a conveyor belt or "corn elevator," and loaded into the silo through the hatch. A motor operated the conveyor belt.²¹⁰

The silo was filled and packed swiftly for the safety of workers and success of the process; plant respiration quickly consumes oxygen. The closed silo stimulated fermentation and prevented the growth of yeast and mold.



Figure 82. A type of corn conveyor used in the 1920s, perhaps similar to a Smyth conveyor. "Corn Farming on the Great Plains," <http://www.cascity.com/forumhall/index.php?topic=36463.0>.

208. NPS interview, John Carl Steichen, 6 June 2006.

209. Laura A.W. Philips, "Win-Mock Farm Dairy, NC," National Register nomination. Limin Kung, Jr., "Practical Management Aspects of Corn Silage for Dairy Cattle," http://ag.udel.edu/anfs/faculty/kung/articles/practical_management_aspects_of_.htm.

210. Levi interview.



Figure 83. The silo was built immediately adjacent to the horse barn (left) and main barn. NPS photograph "prior to restoration" shows a tree and vines at the top. 2 January 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-19-02P)

Iron rungs forming a ladder were imbedded into the walls during construction and led to a hatch in the roof. When silage was needed, a man, probably Ballard, climbed the rungs and entered the filled silo through the hatch in the roof. From there, he pitched the appropriate amount of silage into a wagon for distribution to the cows.²¹¹ The two west openings in the silo provided access as the level of silage lowered, though the small size of the upper opening seems inadequate for removal.

The Sandburgs did not use the silo, perhaps because silage is not a preferred feed for goats, and at some point built an interior east wall in the barn shed that covered the silo's lower opening. The upper opening in the barn loft remains.

The roofless silo was poorly maintained. In the 1970s, NPS removed a tree and vines growing from the top, made necessary repairs, and installed a wood cover over the metal ladder rungs to prevent visitor accidents.

Shavings Shed (HS 19)

The shavings shed was built for the Sandburgs by local carpenter Clarence Forrest in the late 1950s or 1960; a 1949 photograph of the cow shed shows the still-empty site in the background. The left (north) side was open and used for tool storage; wood shavings collected from Rigby-Morrow Company sawmill on Fourth Avenue in Hendersonville were stored in the right side, protected from weather by vertical-board doors

211. Philips, Win-Mock Farm Dairy nomination.



Figure 84. Shavings shed in September 1969 showing configuration of openings and fallen door; Harold J. (Pete) Stout, photographer. (CARL 4008-21-01P)

on an overhead track.²¹² Mrs. Sandburg used only shavings for goat and horse areas; she did not permit smaller wood products because they irritated the kids' eyes and nostrils.²¹³

The park continued use of shavings, which became harder to come by as local mills closed and others no longer planed wood, instead selling rough lumber. Staff took efforts to continue the use of shavings. For a few years, they drove to a mill below Lake Lure. When shavings were no longer available there, they switched to sawdust supplied by Piney Mountain Sawmill near Pisgah Forest, between Flat Rock and Brevard.²¹⁴

A 1969 photograph shows the poor condition of the building before NPS work. NPS repaired or replaced a fallen door and its supporting track, and removed high weeds from the two northernmost bays. The roof was replaced in 1991. The Assessment of Actions identifies the then-existing roof as 90-lb. black roll roofing, and notes, "this roof goes bad quickly. It is proposed to put a layer of plywood under the roofing to keep it from cracking and buckling. The plywood will be installed so that it will not be seen."²¹⁵

Because of this work, it is unlikely that the shed was included in the 1997 plan to reroof "all small outbuildings."²¹⁶

212. Levi provided information on the builder; Barnwell provided information on the mill.

213. Levi interview. Sawdust is used in the goat barn today.

214. Glenn Barnwell supplied information on the mills, 1 July 2012; Hendersonville City Directory 1937-38.

215. CARL 5023, box 2, folder 1.

216. Assessment of Actions form, CARL 5023, box 2, folder 1.



Figure 85. Shavings shed in use in 2012.

An NPS temporary wood tractor shed adjacent to the shavings shed was demolished after 1985 when the large maintenance shed behind the park office was constructed.²¹⁷

Today the shavings shed is open to the public; farm equipment and vehicles are exhibited here and in the barn garage. The southern half continues its intended use, though sawdust for the barn floor is stored rather than shavings.

Cow Shed (HS 18)

Among the poultry raised by Captain Smyth were turkeys, who lived in a gable-roofed turkey house built during the Smyth era near the northeast corner of the barn complex. A top-hinged vertical turkey door on the south elevation opened to a fully-enclosed pen, fenced and roofed with "page wire," a closely-woven wire designed for poultry. A portion of the fence is visible in a Smyth photograph of grandchildren astride a horse (*Fig. 99*). More detail is seen in a 1949 photograph, which shows metal pipes that form a tall square frame to support the wire roofing; these are attached to boards at the south gable of the roof (*Fig. 93*).

Smyth probably had a concrete floor poured, certainly to aid in cleaning the turkey area. Along the west side of the building, a concrete area with a drain was poured, and at the south was a concrete slab.²¹⁸

217. Ducker interview.

218. Smyth also floored his garage with concrete.



Figure 86. Turkey fencing still in place in 1949; image shows the pipe structure supporting the wire roofing, and attachment at the south gable. At the left is wood slat gate in the barnyard fence immediately north of the large metal gate. (CARL 3000-11-13P)

The Sandburgs did not keep turkeys. Instead, they used the building as a horse stall. A 1949 photograph shows a foal in the west doorway, labeled by Paula, “Nicker coming out of Storm’s stall.” The building is covered with a wood-shingle roof and has no gutter. At the front is a small rock retaining wall, now gone; in the background is the bare site of the shavings shed, to be built about decade later.

The Sandburgs at first retained the side- and top-wired turkey pen, as shown in the 1949 photograph. At that time a wood slat gate, painted white, was in the fence line immediately north of the large metal gate to the central barnyard.

At an unknown date the Sandburgs added at the back a rudimentary cow shed with east-facing front where, in winter, Leroy Levi milked the cows. The Sandburgs also replaced the east-west wire fence between this building and the buck kid quarters with a vertical-board fence to better contain the neighboring bucks.²¹⁹

The building was in a poor state when NPS acquired the property. A 1969 photograph of the front and a 1972 image of the front and south

²¹⁹. Levi interview Sandburg chickens were kept in an outbuilding near the main house.



Figure 87. Cow shed in 1949 photograph labeled “Nicker coming out of Storm’s stall,” showing wood-shingled roof, small rock retaining wall, and site of future shavings shed. (CARL 3000-44-053P)



Figure 88. Front (west) elevation in September 1969 showing poor condition; Harold J. (Pete) Stout, photographer. (CARL 4008-20-01P)



Figure 89. Photograph taken spring 1972 “prior to restoration” shows flush siding on south elevation, failing roof, and shifted front wall; Gordon Gay, photographer, NPS. (CARL 4008-20-03P)

side show its condition. The deteriorated asphalt shingles of the gable roof caused the roof structure to sag; a portion of the front wall had shifted from its sill; and the front door and south window sash were missing.



Figure 90. Photograph taken spring 1972 “during restoration.” Work included installation of a door, windows, and considerable replacement of siding; Gordon Gay, photographer, NPS. (CARL 4008-20-04P)

The 1972 photograph shows that the walls of the south elevation flanking the large window opening were faced with flush boards, in contrast to the front weatherboards.

Work conducted by NPS in the spring of 1972 included replacement of the roof, though the extent of replacement of roof structure is not known; the roof was covered with asphalt shingles. A vertical board door was installed in the front doorway.

Replacement of siding appears to have been extensive. The flush boards of the south elevation were replaced with weatherboards. Window surrounds and mullions were added, and three glazed sash, the outer two hinged, were installed over screened openings. Many if not most of the front weatherboards were replaced with new boards.

The metal roof of the shed also was replaced at that time with asphalt shingles. Twenty years later in the 1990s, the shed was near collapse, sinking in the middle; it was pushed up and the roofing replaced.²²⁰ The asphalt shingles installed in 1972 may have caused the damage. Shingles are designed for more steeply pitched roofs that allow water runoff, whereas shingles on a low-incline roof allow water to seep into the building.

Archaeological excavations were conducted in 1979 along the exterior north and west walls. A concrete drain was found along the west side;

²²⁰. Ducker interview.



Figure 91. Turkey door in Smyth turkey house, used as a cow shed and horse stall by the Sandburgs, and a chicken house by NPS. 2012 photograph.

construction materials were found there and in a test at the north wall. No further excavations were conducted.²²¹

The gable building may have been included in the 1997 plan to reroof “all small outbuildings.”²²²

In 1995 the front building was known as the feed house, and the rear shed was used as a hay manger.²²³ Today they together are called the cow shed, though they serve the original use as a fowl house; both buildings house chickens, the turkey door giving access to a fenced pen. The center glazed sash has been removed, the other two rebuilt with wider muntins and frame.

Buck Kid Quarters (HS 15)

Often reported today to have been built after 1900 by Smyth, physical evidence and construction details suggest the building dates from the nineteenth century.

²²¹. Pence, *Assessment*, p. 65.

²²². Assessment of Actions form, CARL 5023, box 2, folder 1.

²²³. Amendment to National Register nomination, 1995, p. 7-6.



Figure 92. Front (west) façade of buck kid quarters during Smyth era, showing open-slat siding at both levels, location and type of doors, and open southwest corner. Shed, since demolished, is shown to the south. At the far left is the page-wire fencing of the turkey pen, possibly ca. 1915. (CARL 3001-05-01P, Smyth Family Photograph Collection)

The building and its use have undergone significant change. Two photographs from the Smyths' time at Connemara show the structure with open slatted exterior walls similar to the walls of the corn crib (*Figs. 99 and 100*). The first level is comprised of two sections, the north with a centered flush-vertical-board door hinged at the right, and the south section open, possibly as a wagon entrance. The south exterior wall was therefore beneath the upper level and near the middle of the building. Centered at the loft level is a doorway at floor height. It appears to have no door or shutter; the rear wall of the building is visible through the opening; it is also open-slatted. The steep-pitched roof is covered with wood shingles. The slatted building was most likely used to store corn for the Smyths' dairy cows.

One of the Smyth photographs shows a simple shed-roofed structure at the east border of the barnyard, immediately south of the buck kid quarters, its east face probably open for animals in the pen. A barbed-wire fence runs south from the front corner of the shed. The shed has since been demolished.

The quarters building underwent extensive alteration. A Sandburg photograph taken in late

1952 shows these changes. The open-slat siding has been replaced with weatherboards, and the open southwest corner has been enclosed. In place of the vertical-board door is a five-panel residential door; its surround is painted white, or perhaps new boards not yet painted. A vertical-board door gives access to the enclosed southwest space. A wood ladder climbs to the loft entrance, still without a door or shutter. A tall board fence has replaced the barbed-wire fence, and runs north-south from the front corner of the building; the shed has been removed. When these changes were made and whether by Smyth or Sandburg is not known, though it is not unreasonable to conclude that the building was enclosed when its use changed to housing.

A photograph taken after 1952 shows that the five-panel door was replaced by a board door with exterior center batten. (*Fig. 103*).

In another Sandburg photograph, the southwest corner of the building is shown with new, still unpainted weatherboards from roof to ground. The roof is covered with nailed asphalt sheathing. The board fence remains in place, but the shed is gone. The photograph identification card at park archives is dated 1948, then scratched through and



Figure 93. Southwest corner of buck kid quarters during Smyth era, looking north, showing open corner and open-slat siding, ca. 1915. (Enlarged portion of CARL 3001-04-01P, Smyth Family Photograph Collection)

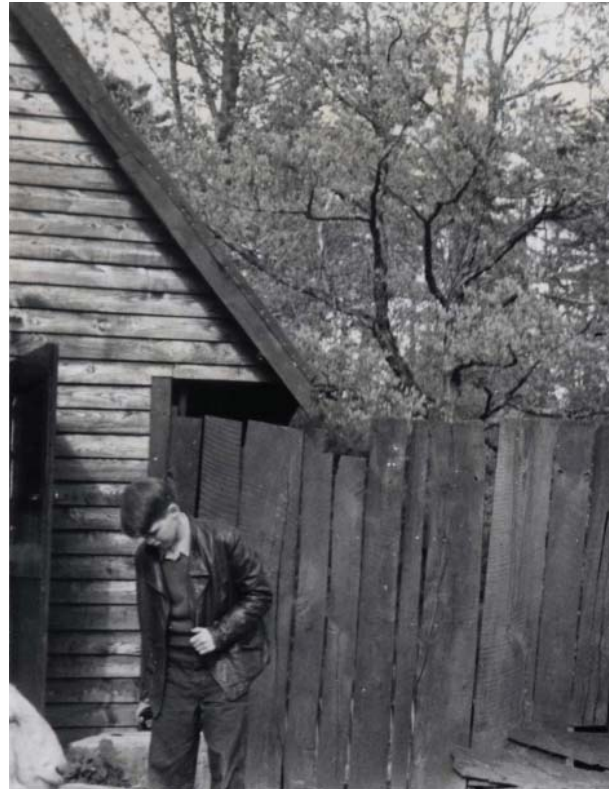


Figure 95. Southwest corner of buck kid quarters with unpainted weatherboards. Probably 1948 as originally labelled, though later revised to ca. 1954. (Enlarged portion of CARL 3000-01-54P)



Figure 94. By late 1952, weatherboards have replaced the open slats of the buck kid quarters, the southwest corner has been enclosed, and the surround of the 5-panel door appears white. (Enlarged portion of CARL 3000-01-40P)

revised to ca. 1954. The 1948 date is more likely, because the weatherboards are shown in place in the 1952 photograph.

The south side of the building was treated differently, enclosed by the Sandburgs with vertical siding of a quality inferior to the earlier weatherboard siding.

The modified building was named for its use. Buck kids, or bucklings as Helga called them, were moved from the barnyard into this building and adjoining pen when they began to pay attention to the females, usually at about twelve weeks, then moved to the distant buck house when they were about a year-and-a-half old.²²⁴

Feed was kept in the north room and passed through holes in the slatted partition to wooden troughs lining the north wall of the south bay. In the back north room was a trough and hay manger. From this room the younger buck kids, six at a time, were let through a small back door to an

224. Interview, Janine Donovan, 17 June 2012; and April 5 entry, Helga's 1946 journal. "Connemara Farms Log--1946." CARL 4014, box 1, folder 9.



Figure 96. Buck kid quarters in active use, showing hay in the loft and tarpaper covering the roof. Goats are shaded by the large elm. Board door has replaced the five-panel door. Charles A. Clark, photographer. Undated, post-1952. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, Inventory number 014-028-008)

outside milk feeder that extended across the back of the building. Stanchions kept them at their own pans while they fed. Hay was kept in the loft.²²⁵

The building also was used for breeding. Breeding season began after the young bucks had been sold or moved to the buck house behind the caretaker's house. The vacant building then housed the mature bucks selected for breeding, and breeding usually took place there or at the buck house.

The condition of the buck kid quarters declined in the 1960s. By 1972 the roof, still sheathed, shows large holes in the southwest corner. In July 1972, NPS removed the entire roof structure. A photograph labeled "restoration work" shows the two freestanding end walls propped up by diagonal 2 x 4s resting on the loft floor. The rakeboards also are missing, leaving the cut ends of the gable weatherboards visible. The new roof was covered with 5V metal roofing. Materials and construction details of the original roof are not known.

In 1979 a stone foundation was built on the north side of the building while archaeological test excavations were conducted on the south side. The excavations revealed only modern materials, including roofing nails.²²⁶

The metal roof of the buck kid quarters was repainted in 1993, though little information is



Figure 97. Hole in roof of buck kid quarters, 1972. In the background is the horse barn. 2 June 1972. Gordon Gay, photographer, NPS. (CARL 4008-16-05P)



Figure 98. Total removal of roof structure of buck kid quarters. 11 July 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-16-13P)

provided in files. This no doubt coincided with the 1993 painting of this barn, the goat barn, horse barn, and corn crib.²²⁷ The buck kid quarters may have been included in the 1997 plan to reroof buildings in the barn complex.²²⁸ Austin Ducker remembers that he and Glenn Barnwell installed new gutters, though he is not certain of the date.²²⁹ The building continues to be used by NPS for goats and for breeding. Two freestanding posts remain in the pen behind the building. These were for Captain Smyth's bull; a chain suspended from the posts held a swinging wood block for the bull to butt.²³⁰

225. Levi interview. The westernmost feed trough in the south bay was removed recently.

226. Pence, *Assessment*, p. 62.

227. CARL 5023, box 2, folder 1.

228. Assessment of Actions form, CARL 5023, box 2, folder 1.

229. Ducker interview.

230. Levi interview.

Corn Crib (HS 14)

According to NPS interviews with his son and wife, Ulysses Ballard built the open-lath corn crib when he was Captain Smyth's caretaker, perhaps to supplement the corn storage space provided by the larger slatted building later used as the buck kid quarters.²³¹ The building is tapered, wider at the top, and typical of cribs in Flat Rock, both tapered and straight-sided.

This crib was built with its door placed high, a common feature in the region, designed in part to prevent a loose horse or cow from overeating, and to create a front wall for corn storage.²³² The Sandburgs added a lower door to create a Dutch door configuration, also a common feature.²³³ The doors were latched together and used as one until the height of the corn required the lower door to be closed. As the crib filled, a slope was maintained to avoid obstructing the top door. Additional corn was dropped through the small lattice-shuttered opening high in the south gable.²³⁴

Two Smyth photographs show the south and east facades of the corn crib. The roof appears to be wood-shingled, and the southeast foundation pier appears to be stacked stone perhaps associated with a low stone wall. The slats appear to be whitewashed or painted white, though perhaps a pale color or unpainted. Near the corn crib, children play in a large round-bottomed metal trough fed by a spigot. A wire fence is visible in the background. The purpose of the white scallop shapes at roof edge is not known.

A second Smyth photograph shows the small shuttered opening in the south gable. One of Smyth's early automobiles dominates the foreground; his large cow barn is beyond. Again the slatted siding is whitewashed or painted a pale color, possibly white, or is unpainted, appearing pale in the sun. At the far left of the image is the shingled roof of a large and tall side-gabled building west of the corn crib; its location on the west boundary would create a more complete enclosure of the barnyard.



Figure 99. Children play in a large watering trough just east of the corn crib, which appears to be white, a pale color, or unpainted. The purpose of the scallops at the eave of the wood-shingled roof is not known. Foundation pier appears to be stacked stone on a low wall. Undated Smyth photograph. (CARL 3001-16-22P, Smyth Family Photograph Collection)

The Sandburgs for some years stored corn here for their horses and the few cattle they kept, later using the building to store small tools.²³⁵ The crib is shown in the foreground of the 1956 panorama. The stone footings seen in Smyth photographs have been replaced by round wood piers, and there is no stone wall beneath the east wall. In this and later Sandburg photographs, the building is painted a dark color, probably the red of other barns (as seen in later color photographs). This 1956 image already shows weathered or chewed paint on the south elevation. The upper half of the north door is open and visible at the northeast corner of the crib, and a feeding trough, very much in use, is attached to the east skirt board.

A 1971 photograph taken before NPS began work on the crib shows a cinder block footing at the northeast corner of the crib, presumably added after the wood post deteriorated (*Fig. 44*). NPS added a round post during repairs.

NPS photographs taken in 1971 and 1974 show the crib before and after the first repairs. The diagonal brace in the 1971 photographs suggests the building was listing. The wood trough, missing in 1971, was replaced during repairs, the new wood clearly seen in the 1974 photograph.

No evidence remains today of the trough or its attachment. The twelve-foot-long skirt boards of east and west elevations were replaced, each with a ten-foot board and a shorter board, creating a vertical seam. Over the years all of the sills of the

231. NPS Interviews, Ballard's widow Mrs. Emily Ballard, 14 October 1975, and son Frank Ballard, Jr., 19 October 1982.

232. Hogan Corn interview, 28 April 2012.

233. Barnwell interview.

234. Barnwell interview; Corn interview.

235. Levi interview.



Figure 100. Small shuttered window in upper south gable of the corn crib. The slatted siding appears to be painted a pale color, possibly white or whitewashed, or is unpainted appearing pale in the sun. The small cow windows of the barn are in the right background. Visible in the far left background is the shingled roof of a tall building, no longer extant, forming a western border of the barnyard. (The diagonal in front of the roof is the metal brace of the windshield.) Undated Smyth photograph, possibly ca. 1915. (CARL 3001-14-02P, Smyth Family Photograph Collection)

crib have been replaced, and at least two or three of the post footings. The skirt boards were milled at John Lee Ward's sawmill near Zirconia, which supplied much of the lumber used by the Park Service, most cut to order.²³⁶

During the 1985 windstorm, a branch of the falling elm tree clipped the corner of the corn crib, but the damage was slight.²³⁷

The corn crib roof was proposed for repair in 1991. The Assessment of Actions reports it as a slate roof, noting that "the park has on hand the materials to repair it."²³⁸ The stated material is inaccurate; corn cribs generally were not roofed with slate, and today the roof is covered with asbestos-cement shingles, which went out of production in the 1980s. According to Austin Ducker, the materials

used in the 1991 repairs were the current cement shingles that were stored in a shed near the buck house (behind the caretaker's house) and installed by Glenn Barnwell. The shed was later demolished.²³⁹

In 1993, the corn crib and several other farm buildings were repainted.²⁴⁰ Today, the double doors of the corn crib cannot act independently; they are fastened together by vertical boards nailed to the interior edges.

Goats continue to play in the open area around the crib. During the Sandburgs' time, they played on a seesaw made of a long wood plank balanced on a perpendicular center support with rounded top. The plank today is fixed to a square support and serves as a bench for visitors.²⁴¹

236. Ducker and Barnwell interviews.

237. CARL 5023, box 2, folder 1.

238. Ibid.

239. Ducker interview.

240. CARL 5023, box 2, folder 1.

241. Levi interview.



Figure 101. Corn crib in 1956 showing post footings and a feeding trough on east skirt board. The dark paint is probably the red of other barns. (Enlarged portion of CARL 3003-2.3-1)



Figure 102. The corn crib in July 1971, showing its condition before NPS repairs. The wood feed trough is missing. At the diagonal support is Gordon Gay, first park curator who served from 1971 to August 1973. Jim Kretschmann, photographer. (CARL 4008-15-02P)



Figure 103. The crib in the summer of 1974 after repairs. The wood trough has been rebuilt on the east skirt board, and the northeast post footing has been replaced. In the background is the large elm tree, protected from the goats by a vertical slat fence. The tree fell in 1985. Ron Thoman, photographer. (CARL 4008-15-07P)



Figure 104. Wood post footing at northwest corner of corn crib, 2012.



Figure 105. Boards nailed to interior edges of corn crib door join upper and lower sections as one. 2012 photograph.

Barn Garage (HS 13)

The barn garage is the only building in the complex painted white, apparently its original color. The garage was built by the Smyths probably around 1920 when they added a porte cochere to the house. Smyth was an early owner of automobiles, collecting a “fleet” over the years which were kept in this garage and cared for by his servant James Fisher, who became his chauffeur for many years.²⁴²

An undated Smyth photograph of a young child shows a portion of the front (south) façade. Double doors at the vehicle bays are somewhat detailed and appear to be sash doors, with glass panes in the upper half and, at the bottom, two vertical panels filled with narrow flush vertical boards. An unpainted strap hinge is shown at the middle rail, and a longer unpainted strap hinge at the bottom rail. The upper portion of the doors is not visible. A variation of German siding covers the narrow strips of wall between doorways. A visible seam indicates the apron in front of the garage was paved with cement.

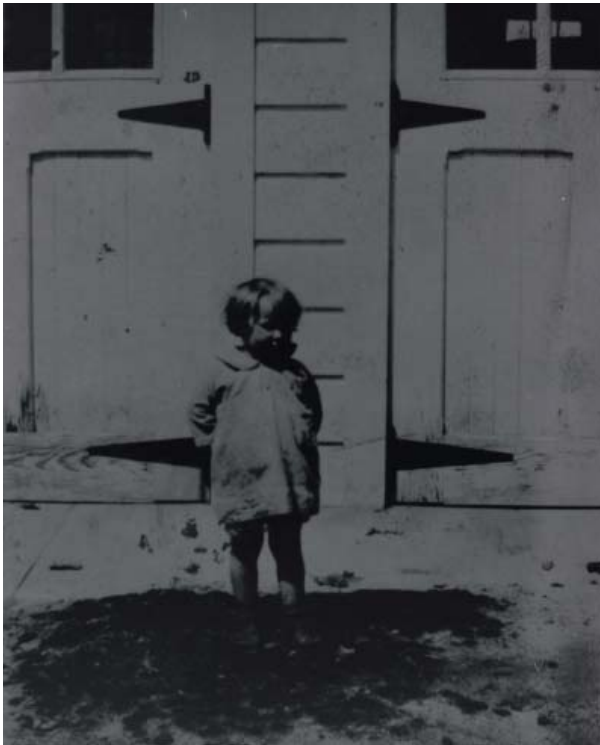


Figure 106. Door and siding details of the barn garage when used as a car garage by the Smyths. No date; pre-1942. (CARL 3002-02-1P, Smyth Family Photograph Collection)

242. Jones, *Main House HSR*, pp. 71-72; James Fisher interview, 18 November 1975. A Smyth granddaughter remembers that there was “something,” perhaps a building, on the site of the barn garage before its construction.

The Sandburgs changed the use of the building in 1946 when they converted the Smyths’ 1838 kitchen building next to the main house into an automobile garage. The Smyths’ garage then became known as the barn garage, and was used for large farm equipment. The atmosphere changed a few nights a month when the vehicles were backed out, the garage was “cleared and equipped with a stand, chairs, refreshments and crepe-paper decorations,” and square dances were held by Frank Mintz, the Sandburg’s herdsman. Mintz was the caller for the “Connemara Cloggers,” and played the bass fiddle. His square dance team attended exhibitions at local festivals, the members wearing T-shirts bearing the words “Chikaming Goat Herd, Connemara Farm” and a red goat’s head.²⁴³

The doors of the garage were removed during the Sandburgs’ time there. A 1950 photograph shows the barn garage in the distance with doors in place. They appear to be of the same design as those shown in the Smyth photograph.²⁴⁴ The garage was without doors in the Sandburgs’ last years at Connemara, as shown in a 1967 photograph.

Upon acquisition of the property, NPS used the barn garage as its maintenance building.²⁴⁵ Major rehabilitation work in 1972 included significant rebuilding of portions of the structure. A 1969 photograph shows the building before work began. No doors are present, the asphalt roofing shingles are worn, and the bottom of some surrounds and bottom boards between bays are rotted.

Although other deterioration is not visible, there must have been significant decay. In January 1972, the entire front of the building was taken down. Three photographs, labeled both “restoration” and “reconstruction,” show the progression of the work. In the first, a tractor and rope are felling one of the narrow front walls. The south slope of the gable roof has been removed, its lumber piled on the ground.

243. Steichen, *My Connemara*, p. 50; Levi interview.

244. The doors are visible though the photograph is blurry; CARL 3000-44-061P.

245. Barnwell interview.



Figure 107. The barn garage shown in 1967 without doors, photographed by Mrs. Sandburg's granddaughter Paula Steichen. (CARL 3000-24-1P)



Figure 108. Barn Garage in September 1969 before work began. Harold J. (Pete) Stout, photographer. (CARL 4008-13-01P)

The second photograph shows construction of the roof and façade underway. Two original rafters were retained at the west end. By late March the front was close to completion, and an interior partition with doorway was under construction to enclose the western bay, though was later removed.

The doors of the barn garage are significant features, making up the majority of the façade. In place today are double doors, as in the Smyth photograph, but with important variations. The exterior face is of vertical beaded boards, the interiors of plywood, whereas the lower portions of the Smyth doors were detailed with recessed

beaded-board panels between boards and rails. At the top of each current door is a row of three glazed openings generally similar to the visible Smyth glazing. Three strap hinges of same length are painted white, in contrast to the black hinges of different length in the Smyth photograph. A pedestrian door has been cut into the door of one of the bays. The concrete apron appears the same as that in the Smyth photograph (*Fig. 113*).



Figure 109. Demolition of front façade, January 1972. Photograph is labeled, "restoration in progress. Shown in foreground is Farmer Demonstrator, Leroy Levi on tractor." Another label reads "to show reconstruction." Gordon Gay, photographer, NPS. (CARL 4008-13-10P)



Figure 110. Rebuilding of the front façade, January 1972, labeled, "restoration in progress," with purpose noted as "to show reconstruction." Gordon Gay, photographer, NPS. (CARL 4008-13-15P)



Figure 111. “Restoration in progress,” showing construction of interior partition with doorway, later removed. 24 March 1972. Gordon Gay, photographer, NPS. (CARL 4007-41-03P)

In 1974 in preparation for the opening of the park, a sign lettered “Connemara Farms Goat Dairy” was made and installed on the southwest corner of the barn garage above the barnyard entrance gate. Leroy Levi remembered the original sign, and a Sandburg photograph gives documentation of its design.²⁴⁶

Two archaeological test excavations made in 1979 at the north and east foundation walls of the barn garage found underground power and telephone lines along the north side, and a water pipe along the east side. Construction materials were found in both pits; no further investigations were recommended.²⁴⁷

In 1978 when the barn garage remained in use as a vehicle and maintenance building, Helga wrote to Superintendent Benjamin H. Davis expressing concern that her mother’s reputation in the goat industry was not understood by the public. “I was told that one of the future hopes was to in time turn the barn garage into a place where—with a symbolic herd in the barnyard—my mother’s part in the goat industry would be explained, an area which ran parallel to my father’s work.”²⁴⁸ This use was made possible in 1985 when vehicles and equipment were moved to the park’s newly-constructed maintenance building, repairs

246. CARL 5023, box 2, folder 1.

247. Pence, *Assessment*, p. 62.

248. Helga Sandburg Crile to Superintendent Benjamin H. Davis, 25 July 1978. CARL 4014, box 1, folder 5.



Figure 112. Front façade of barn garage, 2012 photograph.



Figure 113. Sign at corner of barn garage.

were made, and the barn garage was converted to an exhibit area with Sandburg vehicles and interpretative boards.²⁴⁹

A 1991 Assessment of Actions included replacement of the 1972 barn garage roof, identifying the roofing as “composition 235 lb. weight shingles” in poor condition. No information is provided on replacement roofing.²⁵⁰

The barn garage also was painted in 1991, but by 1994, the three-year-old paint was peeling and a request to repaint in the same color was approved, though this project and repainting of the milk house were delayed until 1997.²⁵¹

249. Mrs. Sandburg’s scale exhibited in the barn garage originally was kept near the tack in the horse barn, and was used to weigh the goats every three months. Levi interview.

250. CARL 5023, box 2, folder 1.

251. Section 106 form for 1994 repainting, CARL 5023, box 2, folder 1; and Assessment of Actions form and note on file folder, CARL 5023, box 2, folder 1.

It is doubtful that this building with its 1991 roof was included in the 1997 plan to reroof the buildings in the barn complex.²⁵²

A fire alarm panel was installed in the barn garage in 1998 or 1999 by electrical cable contractor Grot Inc, of Lexington, Kentucky.²⁵³ And in 1998 the 1974 farm sign was repainted and relettered.²⁵⁴

Today the building continues as an exhibit area for visitors.

Isolation Quarters (HS 12)

This steep-gabled building appears to have been built in the nineteenth century, during the Memminger or Gregg periods. The north and west elevations are sided with large plank boards installed with cut nails, consistent with the excavation of cut nails near the foundation during archaeological excavations in 1979.²⁵⁵

Its first use is not known, but one of the Smyth granddaughters remembered that sheep stabled here at night during Captain Smyth's time. Hay may have been stored in the loft.²⁵⁶

The Sandburgs apparently used the building from the start as a buck house. In a 1945 letter sent the week before she brought the goats from Michigan, Mrs. Sandburg wrote to contractor Joe Anders:

Since the bucks cannot be near the does, they can all go in the small house adjoining the bull pen with the high wooden fence around it. This small house is 13' x 14', so you will know which one I refer to [the building is about 14' x 15']. This house is very drafty around the bottom of the walls, so I asked Mr. Ballard to make it tight. Will you see whether he has done this, and if he has not, then will you please have your carpenter fix it reasonably tight and draft proof around the bottom. Also check the door to this buck house, so we will have a draft proof place to put the bucks in when they arrive. This place should be bedded with two bales of straw and have a bale of hay in the passage.²⁵⁷

252. Assessment of Actions form, CARL 5023, box 2, folder 1.

253. Email Steve Sherwood to SERO Historical Architect Ali Miri, NPS Contract Specialist Georgi Wellington, Park Chief of Maintenance Johnnie Wright, and Superintendent Connie Backlund, 21 September 1998; letter, Kerry Russell, Grot, Inc., to Wellington, 7 October 1998; CARL 4029, box 1 folder 12.

254. CARL 5023, box 2, folder 1.

255. Pence, p. 61.

256. Mary Smyth McKay Interview., 16 January 1973.

257. Mrs. Sandburg to Anders, 14 November 1945, Doc. Box F.O.2, CARL74126 folder 2.

The reference to a passage reflects the interior partitioning that remains today.

Although the Sandburgs first used the building to house bucks, in later years it served as isolation quarters for varying purposes. The building and adjoining two pens quartered sick goats to separate them from the rest of the herd. It was also used to hold goats before being shipped for sale and after their health certifications, and occasionally to hold selected bucks before breeding.²⁵⁸

After Connemara's transfer to NPS, the building was known informally as Whinny's Barn, named for Paula's pony, who remained at Connemara until he died around 1990 at age thirty.²⁵⁹

Little information was found regarding repairs made to the building by NPS. A new horizontal-board door was installed at the front and the building was painted and re-roofed in preparation for the park's 1974 opening. Photographs suggest that few changes were made, and perhaps few repairs were necessary.

The 1979 archaeological excavations were conducted along the north and west exterior walls. Although one test unit produced the cut nails mentioned above, no further investigations were recommended.²⁶⁰

Like many spaces in the barn complex, the hayloft was used for storage until construction in 1985 of the new maintenance building behind the offices.²⁶¹



Figure 114. Isolation Quarters photographed in July 1971 "to show condition." New board door has not been painted. Photographer Jim Kretschmann (appointed manager and historian in 1970, later superintendent). (CARL 4008-12-02P)

258. John Steichen interview, June 2012; Levi interview.

259. Ducker interview.

260. Pence, p. 61.

261. Ducker interview.



Figure 115. North (rear) façade of the Isolation Quarters showing height measurement, boarded window, corner door cut for goats, 2 June 1972. Gordon V. Gay, photographer, NPS. (CARL 4008-12-05P)



Figure 116. The building, labeled "ca. 1974," after the roof was resingled. The front door was later painted, the side door installed, and the west gate replaced. (CARL 4008-12-06P)

The isolation quarters may have been included in the 1997 plan to reroof all buildings in the barn complex.²⁶²

In 1999-2000, an NPS contractor installed a sprinkler fire suppression system throughout the barn complex. A partitioned room in the northeast corner of the isolation quarters holds one of the sprinkler system controls and a small electric heater to prevent freezing.



Figure 117. Goats in the Connemara barnyard. n.d., photographer unknown. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, inventory number 014-029-022)

262. Assessment of Actions form, CARL 5023, box 2, folder 1.

I.C Physical Description

General Description

The Site

Connemara is located in Western North Carolina among the many nineteenth-century summer estates of Flat Rock. The community sits on a hilly plateau of the Blue Ridge Mountains, characterized by thick woods of hardwood and white pine interrupted by outcroppings of granite and small mountains, including Connemara's Glassy Mountain. The region is crisscrossed with rock-strewn and waterfall-dotted streams and rivers, and is a popular destination for wilderness outdoor activities.

At an elevation of about 2,200 feet, Flat Rock's summers are mild, the vegetation lush with flowering wild rhododendron, hydrangeas, and

wildflowers. The fall is noted for spectacular displays of color. Winter temperatures can be brisk with snowfall varying considerably from one winter to the next. Spring is vibrant with blooming tulip poplar, mountain laurel and wildflowers.

The landscape of Flat Rock remains distinctly rural in character. Road are primarily narrow, bordered by vegetation and curving with the terrain.

Families who trace their roots in the area to the eighteenth century remain a significant segment of the population. Flat Rock retains a strong summer community, and both it and the thriving small city of Hendersonville a few miles to the north have become home to affluent retirees. The local citizenry recognizes Connemara as the important and valuable resource that it is. They frequent the buildings, grounds and livestock, treat them with great respect, even affection, and are protective of them all. Volunteers are an important part of the goat programs.

The Barn Complex

The buildings and structures of the Barn Complex at Connemara are located in and along the perimeter of a fenced compound of multiple pens in the northern section of Connemara west of the house. The ten buildings and structures of this group, which are the subject of this report, are on the north side of the service road and just west of the Caretaker's House.

Visually and functionally, the large Goat Barn and attached Milk House stand out as the primary buildings in the group. The Goat Barn is wide with two tall stories painted a monochromatic red beneath a steeply pitched roof crowned with a ventilating cupola. Centrally located among the barn buildings, the Goat Barn is by far the largest structure in the group, made even more impressive by its commanding position at the north edge of the barnyard.



Figure 118. Milk House and Goat Barn as seen from Little River Road to the north.

Behind the Goat Barn, appended by a short covered walkway, is the Milk House. Though much smaller than the Goat Barn and constructed of light gray concrete blocks instead of dark painted wood, the two buildings were intended to function in unison.

Indeed, they were the two buildings of primary importance in the Sandburg Barn Complex. Though each had its distinct set of functions, they operated in complementary fashion. Together, the Goat Barn and Milk House were the core of the dairy operation.

Immediately adjacent and east of the Goat Barn are the Horse Barn and Silo. The Horse Barn also faces south onto the barnyard, and it too is wood framed with two levels, clad in weatherboard and painted red. It also likely was built by the Smyths early in their occupancy. Immediately behind the



Figure 119. Barn Complex as approached from the west on park service road.



Figure 120. Entrance into enclosed barnyard where goats are housed. Note fire hydrant near entrance gate.

Horse Barn is another Smyth structure, the Silo. It is circular in plan and constructed of rusticated granite blocks that touch the Horse Barn and the Goat Barn.

A short distance across a side yard, directly east of the Horse Barn, is what is today called the Cow Shed. One story in height, gable-roofed, and containing just one room, the wood frame and weatherboard-sided building faces west. The building was probably built by the Smyths and was used as their turkey house. Attached behind to the east is a pole-and-board shed enclosure. To its north, somewhat separate from the rest of the complex, is the Shavings Shed, a long row of covered pens built by the Sandburgs to house shavings for goat bedding and some equipment.

South of the Cow Shed at the east edge of the barnyard is the Buck Kid Quarters, another small two-level building clad in weatherboard. Portions of this building may date to the Memminger era.

Near the center of the barnyard is a small Corn Crib apparently built by Smyth's caretaker Ballard. Raised a couple of feet above the ground on four posts, it is distinctively clad on all four sides with horizontal lattice boards for ventilation, and topped with a shingled gable roof.

A wire fence runs from the southeast corner of the Horse Barn to the northeast corner at the back of the Buck Kid Quarters. Another fence, made of plank boards arranged vertically, extends some 55 feet from the Buck Kid Quarters to the Barn Garage.

The Barn Garage, built by the Smyths in the 1920s, forms the southeast corner of the barnyard. The long dimension of its rectangular plan is oriented east-west, its four vehicle bays opening towards the service road. Unlike the other buildings, the Barn Garage is clad in a variation of German siding, has handsome architectural embellishments and is painted white.

A gate at the southwest corner of the Barn Garage provides entry from the service road into the yard. A wire fence connects to this gate and runs westward along the service road to form the south perimeter of the yard.

Next to the Barn Garage to the east, facing the road, is the Isolation Quarters. It is small, consisting of a single room at grade with a loft beneath a pitched roof. Two elevations are clad with broad plank boards, perhaps the originals; two are covered with later weatherboards. It is probably one of the older buildings in the Barn Complex.

The Primary Buildings of the Barn Complex

Goat Barn

This building was built as a two-story gable-roofed wood-frame and weatherboard-clad cow barn. This original section is rectangular in plan with a gable at the two small ends. Initial construction appears to be the early years of the twentieth century, which would place it during the Smyth occupancy. Smyth apparently added the one-story shed roof covering a series of spaces across the rear elevation (North Shed Addition), and later added the shed roof along the expanded west elevation to provide cover but not enclosure (West Shed Addition).

The interior of the barn was extensively remodeled by the Sandburg family for their goat operation. And they renamed the building The Goat Barn.

Construction Characteristics Architectural Description

Exterior Organization & Characteristics

The large red barn is clad in weatherboard siding and sits on a stone foundation. Along the east portion of the long front or south elevation, the foundation of the roughly squared blocks of grayish-tan granite stands less than a foot above grade. As the stone wall extends westward, the grade recedes, requiring a taller wall. Along the west elevation, the stones become much larger and



Figure 121. Southwest oblique of Goat Barn and Horse Barn.

irregular in shape, perhaps as a result of repairs. Along the north elevation the stones are again more regular in shape but are also more gray in color.

The walls of the original barn are two stories in height, the narrower east and west walls forming gable ends. This gable roof has a standing seam metal roof. At the center of the roof ridge is a wood-framed ventilating cupola; at each side atop the roof ridge is a metal wind-driven ventilator. The rear shed roof is covered with red composition shingles. The shed roof on the west elevation is sheathed with 5-V metal roofing panels.

The long south elevation of the original barn remains the principal façade of the expanded barn. It faces south onto a fenced yard containing the Corn Crib and bordered by other barn buildings and the Barn Garage. The main feature of this front elevation is a large central doorway with a pair of doors sized for wagons and other vehicles. To the west, often hidden behind the opened central doors, is a pedestrian doorway with six-panel door. Still further west is a now-enclosed vehicle doorway similar in size to the central doorway. Cut into the enclosure is a pedestrian doorway with board-and-batten door; a bottom-pivoting, drop-back two-light single sash window to the east; and two such window openings to the west.

East of the central doorway is a similar drop-back sash window, a pedestrian doorway with board-and-batten door, and finally two more drop-back windows.

At the second level above the central doorway is a through-the-eave shuttered opening for bringing hay into the hayloft. A second upper opening, slightly lower, is located above the eastern group of first-floor windows.

The east gable wall of the barn, though largely blocked from view by the Horse Barn and Silo, has one visible window for loading hay, a second-level opening with board-and-batten shutter. Two openings have been cut into the east wall of the North Shed Addition. At the lower level is an opening without casing or door that allows passage from the Goat Barn to the Silo just inches away. It is blocked off. At the loft level is a similar but smaller opening at a corresponding opening in the Silo.

The north elevation of the barn is the one-story north wall of the North Shed Addition. There are three pedestrian doorways and eight windows. The doorway at the far east end of this elevation has two doors; the outer door consists of a board frame with goat wire mesh between, while the inner door is made of vertical boards with a perimeter board frame. The other two doors on this elevation are side-by-side about a third of the way from the east end wall; both are five-panel doors.

The four windows, centrally located but irregularly spaced, are double-hung six-over-six-light sash windows. The two to the east are each one sash separated from a double-hung window unit but hung casement style. The two drop-back style windows units to the west are installed as a pair separated by a mullion; each has a four-light sash.

The west elevation of the barn has a board-and-batten shutter at second-floor level that matches the shutter on the east elevation. At first-floor level are two pedestrian doorways and a shuttered opening. At the middle of the wall is a five-panel

door. Half the distance to the north wall is a board-and-batten door. Half the distance to the south wall is a board-and-batten shutter raised several feet above floor level, presumably for the unloading of supplies.

Across the full width of the west elevation is a one-story shed roof supported on posts resting on a stone wall. Slightly off-center to the south is a wide opening in the wall for livestock to pass from pasture to the covered area beneath the shed roof.

Interior Organization & Characteristics

The ground floor of the original barn sits slightly above grade and is subdivided into three major sections by two original cross walls running north-south. All three sections extend from the original front wall to the original back wall. The center and west sections are the same width; the east section is much wider.

The middle section now known as the Grain Room originally had a large vehicle opening at front and back walls; now only the front or south wall vehicle opening remains. A pedestrian doorway

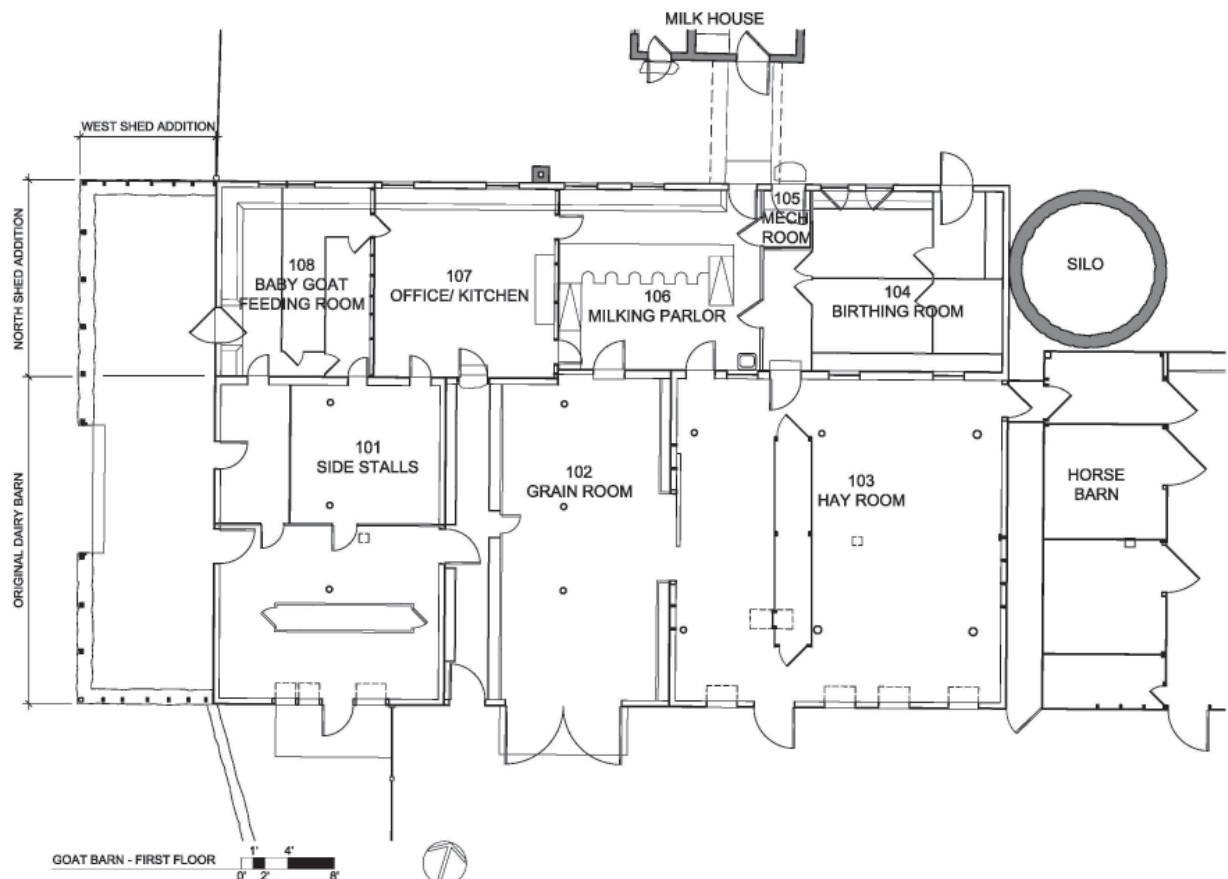


Figure 122. First-floor plan.

has been added at the south exterior wall and two pedestrian doorways have been added to the north, originally exterior, now interior wall; the doors connect to the Office/ Kitchen and the Milking Parlor. Feeding troughs line the north-south walls. An early if not original door connects to the west section.

The west section is known as the Side Stalls because of the several stalls added in the north portion for goats. A large free-standing hay manger is in the south section of this large room. The large original vehicle doorway on the south wall has been infilled with a pedestrian doorway and windows. A door and a raised shuttered opening, presumably for supplies, are on the west wall. Three narrow doorways for goats were added to the north wall to connect the goat pens with feeding areas in the North Shed Addition.

The east section of the original dairy barn connects to the middle section by way of a large opening with sliding door. This room is now known as the Hay Room because of the large hay manger near the center of the room. An added pedestrian door on the south wall opens to the barnyard. Another on the east wall connects to the Horse Barn,

though is now blocked by fire suppression pipes. Two added doorways on the north wall connect to the Birthing Room and Milking Parlor.

All three first-floor rooms of the original barn have a hatch added to connect with the Hayloft above. The hatch in the Hay Room ceiling is a double opening, one for hay and the other containing a ladder for passage between first-and second-floor levels.

The upper level of the Original Dairy Barn is one large room, though subdivided into three sections matching the rooms of the first floor.

In the North Shed Addition are four major rooms aligned east-west, all housing important functions for the goat operation. A fifth very small Mechanical Room is carved out of the northwest corner of the easternmost room, the Birthing Room.

The westernmost room, now known as the Storage Room according to its current use, was the Sandburg's Baby Goat Feeding Room. The room is divided into three sections with two rows of feeding stalls. The room has a doorway leading

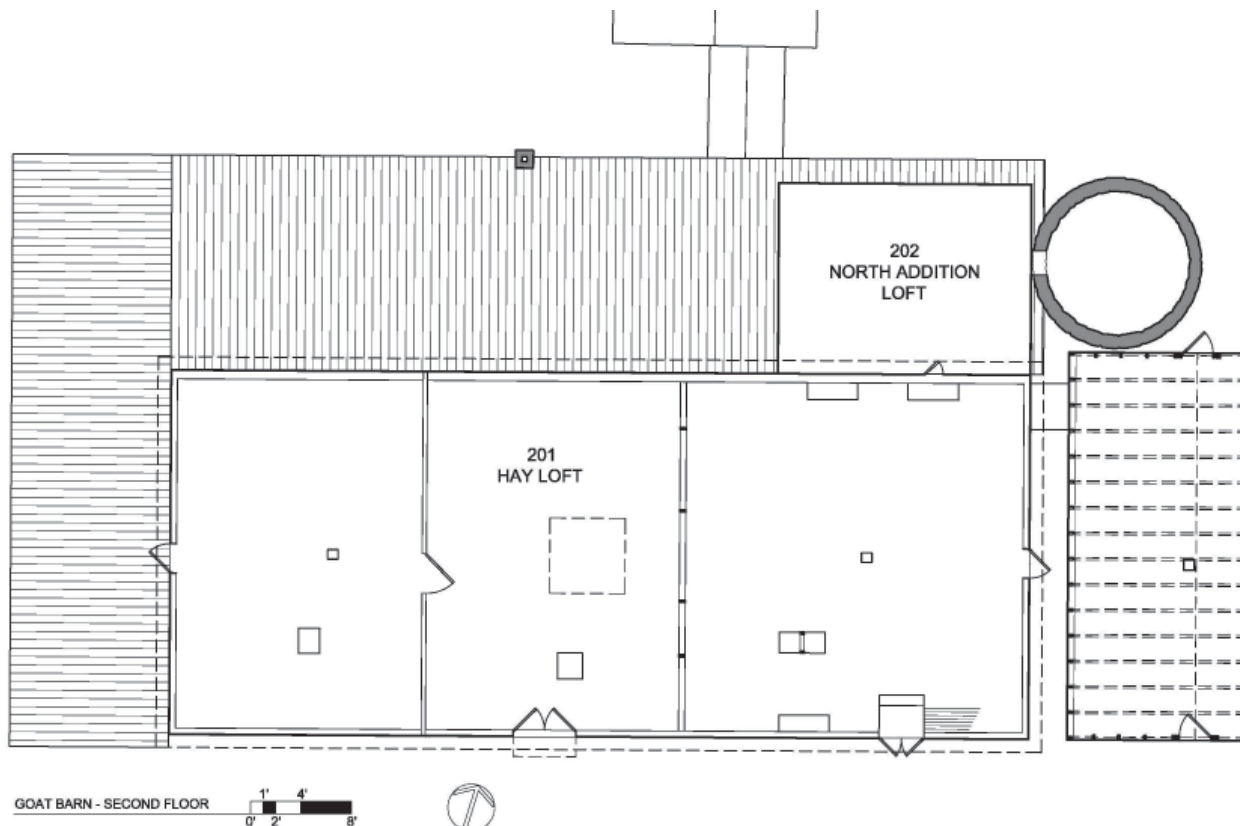


Figure 123. Second-floor plan.

into the West Shed Addition, two added doors on the south wall connecting with stalls for young goats, and a door on the east wall connecting with the Office/ Kitchen.

The Office/ Kitchen has a sink, overhead cabinets, and kitchen appliances along its east wall, food bins along the north wall, and office furniture along the west wall. Of the two doorways on the south wall, the western doorway connects to the young goat stalls of the west section of the Original Dairy Barn, and the eastern doorway opens to a walkway to a doorway on the south wall of the Original Dairy Barn. Two doorways on the east wall connect to the Milking Parlor.

The milking of the goats occurred in the Milking Parlor. The room is divided by the raised milking platform that runs east-west in the center of the room. Doorways on the south wall connect to the Grain Room and Hay Room. The two on the east wall connect to the Birthing Room and the Mechanical Room. The doorway on the north wall leads to a covered walkway to the Milk House.

The Birthing Room is subdivided into four pens and a passageway. Three pens have a hay manger along one wall; the fourth has a grain trough. The doorway on the south wall connects with the Hay Room. The one on the north wall leads into the north yard.

The Mechanical Room houses equipment for the milking operation and tools. While the doorway on the west wall connects to the Milking Parlor, the doorway on the north wall, now blocked by shelving, leads outdoors.

Above the east section of the Birthing Room is a small room in the loft space. The room is accessed from the Hayloft through a shuttered window high on the original north wall of the Dairy Barn. This is an original shuttered window removed from the front elevation of the barn and inserted here. The purpose of this low space is uncertain other than to provide access to the Silo from a small opening in the east wall.

Structural Systems

Foundations

The wood structural frame of the Original Dairy Barn sits on a low masonry foundation wall



Figure 124. Goat Barn: foundation wall of North Shed Addition rebuilt using brick matching those of the chimneys of both this barn and the Milk House.



Figure 125. Goat Barn: seam in foundation wall where North Shed Addition (L) meets Original Dairy Barn.

beneath the building's perimeter and cross walls. This foundation wall, constructed of mortared blocks of local tan-grey granite, is approximately 10" wide at its flat top; the design and depth of the wall below grade is not known.

The newer foundation walls that form three sides of the North Shed Addition and support the added exterior frame walls are constructed of mortared local granite more grey in color and with several courses of brick forming the top of the wall.

Posts supporting the shed roof on the west side of the barn rest on a wall made of mortared blocks of local granite. This is the most recent wall of the building. It is 1'-3" wide and its height varies according to the steep slope of the land on this side of the building.

Exterior Walls & Interior Cross Walls

At the original barn an 8" by 8" wood sill rests atop the foundation walls. The perimeter



Figure 126. Goat Barn: seam between old sill (L) and new sill (R) at east wall of Room 103.



Figure 127. Goat Barn: balloon framing of north wall of Hayloft.

walls and cross walls are balloon framed with irregularly-spaced wall studs that measure 2" by 6". The studs are toe-nailed to the sill, nailed to the exposed ceiling joists, and at the north and south walls extend 4'6" above the finish floor level of the hayloft to connect to the roof rafters. At each corner are diagonal braces where perimeter walls and cross walls meet. The exterior face of the perimeter is sheathed with 1" by 6" plank boards nailed on the diagonal and faced with weatherboards; the studs are typically exposed on the interior (*Fig. 134*).

The framing of the three exterior walls of the North Shed Addition is balloon framing with 2" by 4" wall studs. The interior face is typically sheathed with plank boards, the exterior with weatherboards.

At the West Shed Addition, a 2" by 10" board serves as the plate atop the stone foundation wall. Along the west section of the foundation wall, paired 2" by 4"s are set approximately 3'-9" o.c. to act as composite posts to support the roof structure. A pair of spiked 2" by 4"s serve as the wall plate.

Floor Systems

In the Original Dairy Barn at first-floor level, almost all walking surfaces are sawdust atop barren ground; the exception is the poured-in-place concrete walkway along the east side of the west crosswall.

The original joists that support the hayloft flooring measure 1 7/8", 2", and 2 1/8" by 9 1/2" to 10 1/8" and are set 24" o.c. In the two narrower rooms, Rooms 101 and 102, the ceiling joists span east-west. In the widest room, Room 103, the ceiling joists are arranged to span north-south. The wood flooring atop the joists is tongue-and-groove boards that measure 3/4" by 3 1/4".

In the early 1950s, additional supports were added to the ceiling joists in all three rooms: in the Side Stalls and Grain Room, three unmilled log posts approximately 10" in diameter were arranged in a north-south line to support a beam of three spiked 2" by 10"s aligned at mid-span of the joists; in the Hay Room, two east-west rows of same type and number of posts and beams were installed at quarter-span while at mid-span a single post of four spiked 2" by 10"s support an east-west beam of three 2" by 10"s. Each unmilled post rests on a tapered precast concrete base 12" tall and 11" square at its base; the one post of four spiked 2" by 10"s rests on an irregularly shaped stone base measuring about 1'-6" square and 1'-0" tall.

In the North Shed Addition, the east room has a dirt floor; the other rooms have poured-in-place concrete.

The West Shed Addition covers ground which has been graded to be more level.



Figure 128. Goat Barn: posts on piers with beams added by Sandburg to strengthen Loft flooring.



Figure 129. Goat Barn: decorative rafter tails along the north and south elevations of Dairy Barn.

Roof Systems

In the Original Dairy Barn, the rafters measure 2" by 6" and the spacing is 24" o.c. The ridge pole measures 1" by 6". A decorative rafter tail is sistered to the east side of each roof rafter. The deck boards measure 1" by 6" with a $\frac{3}{4}$ " gap between each deck board.

The rafters of the North Shed Addition are made up of three sections of 2" by 6" boards. A long section is nailed to each of the decorative rafters



Figure 130. Goat Barn: one of three original Dairy Barn windows on north wall of Room 103.



Figure 131. Goat Barn: gable-roofed ventilator cupola added by Smyth.

along the north elevation of the Original Dairy Barn. The original rafters are set at 24" o.c. For the last third of the span, a third section of rafter, nailed to the middle section, rests on two 2" by 4"s that form the wall plate of the balloon framing. The exposed ends of the rafters are vertical cut.

At the West Shed Addition, the rafters measure 2" by $3\frac{3}{4}$ " to $4\frac{1}{2}$ " and are set at 24" o.c. The exposed ends are vertical cut. The deck boards are planks measuring 1" by 3" up to 11" with spacing between boards measuring 3" up to 5".



Figure 132. Goat Barn: Sandburg added roof with two wind turbines plus one at Horse Barn and Milk House.

sided wood slat ventilating cupola was constructed at the center of the roof ridge to allow rising heated internal air to escape, and two metal roof ventilators were added to the roof ridge to facilitate additional passive ventilation.

A vent fan was also added to the Milking Parlor.



Figure 134. Goat Barn: ceramic tubes for early electrical knob-and-tube wiring at north exterior wall.



Figure 133. Goat Barn: Sandburg-era exhaust fan of Room 106.



Figure 135. Goat Barn: typical Smyth-era 3 1/2" porcelain lamp holder.

Utilities

Heating and Cooling

The Original Dairy Barn was designed to take advantage of sun angles and prevailing seasonal breezes. The long dimension of the barn runs east-west. The large doorway of the long south elevation caught the summer breezes. The north elevation had shuttered small windows to minimize the effects of winter storms.

Modifications were made over time to enhance natural ventilation; these remain today: an open-



Figure 136. Goat Barn: typical modern 4" porcelain lamp holder with flexible modern conduit.



Figure 137. Goat Barn: modern plastic version of porcelain lamp holder.



Figure 140. Goat Barn: Sandburg-era electrical outlet.



Figure 138. Goat Barn: Sandburg-era fluorescent light fixture of Room 106.

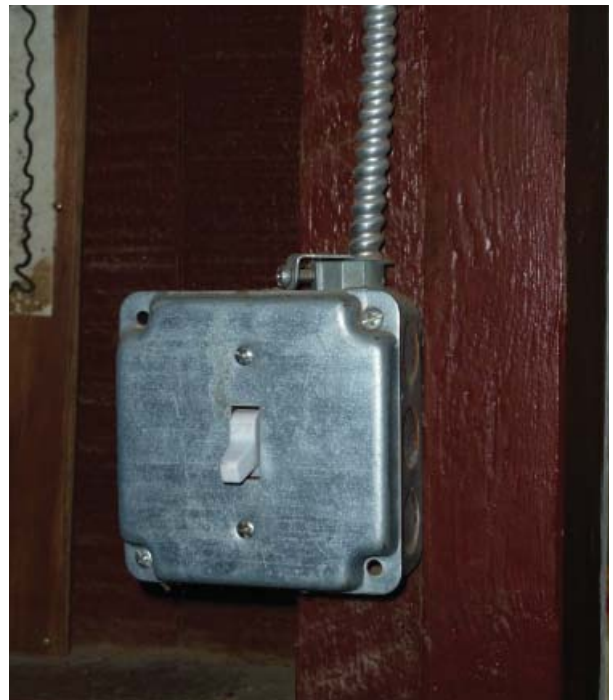


Figure 141. Goat Barn: modern light switch box with flex-conduit installed by NPS.



Figure 139. Goat Barn: Sandburg-era electrical switch cover.

Electrical Power

Duke Energy provides electrical service. Sandburg-era panel boxes are located on the east and north walls of the Office/ Kitchen.

Ceramic tubes associated with early service are present but the wires are disconnected.

Fabric-covered Sandburg-era wiring is present, as are Sandburg-era switch boxes and covers and outlet boxes and covers. Modern metal boxes with either white vinyl-clad wiring or metal flex-conduit are also present.

Electrical lighting is present in every room on the first floor and in the Hayloft. All fixtures, except the two-bulb fluorescent tube ceiling fixture of Room 106, are a variation of the ceramic lamp holder design.



Figure 142. Goat Barn: interior of Sandburg-era fuse box on north wall of Room 107.



Figure 145. Goat Barn: modern live electrical panel on south wall of Room 103.



Figure 143. Goat Barn: Sandburg-era electrical fuse box on north wall of Room 107.



Figure 144. Goat Barn: electrical sub-panel for Room 105 equipment.



Figure 146. Goat Barn: typical floor drain found in rooms of North Shed Addition.

Plumbing

The city of Hendersonville provides water and sewer services.

There are no toilet facilities in this building. A toilet and basin was included in the design of the Milk House, indicative of its role as an appendage to the Goat Barn.

Hot and cold water are available in the Office/Kitchen and formerly at the Milking Parlor basin.

Hose bibs are present in Room 106 and 108 as well as immediately outside the south door of Room 101 and adjacent to the roof drain on the outside exterior southeast corner of the barn.

Sandburg-installed floor drains are present in rooms of the North Shed Addition.

A cast iron drain pipe exits at the west side of the building.



Figure 147. Goat Barn: water drain pipe exits the North Shed Addition at west exterior wall.



Figure 149. Goat Barn: typical hand-held ABC Type fire extinguisher.

Fire Detection & Suppression Systems

There is a dry pipe fire suppression system in the rooms of the first floor, the Hayloft, the enclosed spaces over the rooms of the North Shed Addition, and in the open West Shed Addition.

Smoke detectors are present in all rooms.

Hand-held ABC Type fire extinguishers are also present in some rooms.

A fire plug is strategically placed outside the main gate to the barnyard off the service road.



Figure 148. Goat Barn: typical smoke detector.

Exterior Features

Roofs & Rainwater Collection/ Dispersal

The roofing material on the Original Dairy Barn is a standing-seam terne-coated stainless steel panel system (TCS) by Follansbee installed in 1981.

The North Shed Addition is covered with a red composition shingle roofing system installed in 1998.

The West Shed Addition is covered with unpainted galvanized 5-V roofing panels.

Only the south elevation of the Original Dairy Barn has gutters and downspouts. There are two sections of painted galvanized 6" half-round gutters, separated by the central gable. A single 4" round downspout serves each section. The west downspout dumps at grade. The east downspout connects to a clay pipe that continues below grade; where this pipe continues is not clear.

Chimney

There is an attached exterior chimney stack on the north elevation adjacent to the Office/ Kitchen. The serrated dark red bricks of the stack match the



Figure 150. Goat Barn: east section of front gutter connects to drain line. Hose bib is nearby.



Figure 152. Goat Barn: double-hung six-over-six-light sash windows and four-light drop-back sash of north elevation.



Figure 151. Goat Barn: chimney at north elevation.

bricks of the Milk House chimney. These bricks are also found in the top coursing of the north foundation wall of the North Shed Addition.

The chimney is topped with a tapered cap made of galvanized sheet metal.

Walls

Weatherboards cover all the exterior faces. The size most commonly observed is a 5½" board with a tapered board depth of ⅛" to ½" attached with wire nails. The exposure is typically 4½" to 4¾".



Figure 153. Goat Barn: typical two-light drop-back window sash of south elevation.

However, along the previously exterior north wall of the Original Dairy Barn, now the interior south wall of the rooms of the North Shed Addition, there remain sections of the original weatherboard that covered the barn. It is a plank board that measures ⅞" by 7" with a 5½" weather exposure, attached with cut nails (*As-Found Drawings, Sheet 13*).

Windows

There are three types of windows on the exterior of this building. One is the double-hung, six-over-six-light wood sash window; there are four of this



Figure 154. Goat Barn: typical sash cord pulley wheel of double-hung sash windows of north elevation.

type and all four are on the north wall. All four are the same size, 2'-10" wide by 4'-6" tall, but have two different muntin profiles. The two with Type A profile are in Room 106 and the two with Type B profile are in Room 107 (*Appendix A—Sheet 13*). All have sash cord pulleys at the jamb.

The second type of window is a single sash that pivots inward on its bottom rail to lay back on a wooden rack. There are nine of this type of window. Seven are on the south elevation, and two on the north elevation in Room 108 - Storage Room. Of the seven, two window openings measure 1'-10" wide by 2'-4" tall, have one-over-one wood sash, and are located at the infilled doorway of Room 101; both sash are missing. The other five south wall window openings measure 2'-8" wide by 2'-10" tall and have a two-light sash with Type D muntin. The two north wall windows have a four-light sash with Type C-1 and Type C-2 muntins (*Appendix A—Sheet 13*).

The third type of window is a side-hinged, six-light wood sash that pivots in the fashion of a casement window. A sash from a double-hung window is used. There are two of this window type, placed together on the north wall of Room 104 - Birthing Stalls. Both have the Type B muntin profile. The two sash may be salvaged from the same window.

There is actually a fourth type of window opening, a surviving exterior window in the Original Dairy Barn that is now an interior opening on the north wall of Room 103. The opening was designed without a sash; rather, a board-and-batten shutter that still remains provides the closure.



Figure 155. Goat Barn: east elevation door of vertical plank boards with horizontal and vertical battens.



Figure 156. Goat Barn: door to Room 104 - Birthing Stalls.

Doorways

There are fifteen exterior doorways. The only one on the first floor of the east elevation is a pedestrian



Figure 157. Goat Barn: two five-panel doors added by Sandburg for Mechanical Room (L) and Milk Parlor (R). Stone foundation wall rebuilt with brick.



Figure 159. Goat Barn: both doorways connect to Room 101. Raised doorway on right was probably for supplies.



Figure 158. Goat Barn: board-and-batten door connects to Room 108 of North Shed Addition.



Figure 160. Goat Barn: an original board-and-batten door in each gable of Hay Loft level. Original vehicle doorway (L) infilled with windows and pedestrian door probably by Sandburg.

doorway that connects directly to an added enclosed passageway to the adjoining Horse Barn.

Three doors are on the north elevation. One leads from the Milking Parlor to a short covered walkway to the Milk House. A doorway that opened into the Supply Closet is now blocked. The third provides entrance to Room 104 - Birthing Stalls.

There are three doorways on the first level of the west elevation. Two are pedestrian doorways, one in the Original Dairy Barn and the other in the West Shed Addition. The third is a small door in a raised position on the wall, probably for loading feed or other material.

On the first level of the south (front) elevation are four doorways. The large center opening has a pair of double doors. The other three doorways are for pedestrians; one opens into each of the three interior rooms.

At second level are two matching original doorways, one in each gable end to allow for delivery of hay. Two added upper doorways are at the south elevation, both for moving material to the loft. One, with double doors, is in the center dormer and is fitted with a block-and-tackle pulley for hoisting material to the Hayloft. The second is near the eastern end of the south façade, placed slightly lower than the loft floor level.



Figure 161. Goat Barn: a pair of large original board-and-batten doors for vehicles centered on south elevation. Salvaged sophisticated door at left. Pair of board-and-batten doors at roof dormer added by Smyth. Door at right added by Sandburg.



Figure 162. Goat Barn: south (front) elevation.



Figure 163. Goat Barn: ball-pin hinge.



Figure 164. Goat Barn: barn hinge.



Figure 165. Goat Barn: t-hinge consisting of one butt hinge leaf and one barn hinge leaf.



Figure 166. Goat Barn: rimlock.



Figure 169. Goat Barn: southwest oblique of West Shed Addition.



Figure 167. Goat Barn: Twist-handle latch.



Figure 168. Goat Barn: West Shed Addition looking south.

Roof Shelter

Spanning the entire west elevation of the building is the West Shed Addition, a shed roof that rests on posts atop a stone wall. At the north wall, the framing is covered with weatherboards to block winter wind. Along the west elevation the posts are without siding. The south elevation has siding above the height of the west elevation roof plate.

Stairs & Steps

Three exterior doorways have a single masonry step. One of the steps at the Mechanical Room doorway is made of mortared stone. The other two steps are made of cast concrete; one doorway is on the north elevation and leads to the Milking Parlor and the other is on the south elevation leading to the Hay Room.

There are ghost marks for exterior steps that led to the doorway into the West Pen of the Side Stalls.

Finishes

The exposed wood surface and the hardware of doors and windows are painted red.

Interior Features Room-by-Room

Room 101 – Side Stalls Room

The room measures 19'-0" wide by 28'-0" deep and has a height from the top of dirt floor to the bottom of the exposed ceiling joists of 9'-11". The original purpose of this west section of the Original Dairy Barn is not known. However, the large opening on the south wall, now modified to contain a pedestrian doorway and windows, suggests it was designed to accommodate farm vehicles.

For their goat operation, the Sandburg divided the north half of the room into three holding pens, the south half into a feeding area. Three doorways created on the north wall, one for each pen, open to cordoned areas in Rooms 107 and 108 where very young goats were fed. A gate on the south end of each pen allowed the goats when older to access hay in the south area.



Figure 170. Goat Barn: Room 101 - Side Stalls Room looking west.



Figure 172. Goat Barn: east wall of Room 101. Doorway to Room 102 at center. Pens at left. Hay manger at right.



Figure 171. Goat Barn: looking north in Room 101. Three doorways on north wall added by Sandburg.



Figure 173. Goat Barn: Room 101 looking south. Hay manger in foreground.

Flooring

Flooring throughout the room is dirt. During the Sandburg period, shavings were regularly applied and then removed when soiled and replaced. The process continues today, but with sawdust rather than shavings.

Perimeter Walls

The foundation wall and wall sill are visible at sections of the four perimeter walls. The balloon framing of the north, west, and south walls is also visible, as is the interior side of the diagonal sheathing applied to the exterior face of the framing beneath the weatherboards.

Perimeter Doorways

Originally, a large doorway was centered on the south wall of this room, measuring 10'-10" tall by 10'-10" wide. The opening matched the central front opening of the barn, and probably held a large door hung on a sliding track. The wide

opening would accommodate large vehicles. At some unknown point, the doorway opening was infilled with a frame of 2" by 4"s. Within this new frame were built a pedestrian door and three windows. The remainder of the opening was covered with weatherboard and plank board siding. The weatherboard has a weather exposure varying from 4½" to 4¾". The plank board measures ¾" by 3¼" and is arranged vertically. The original exterior door casing of plank board remains and measures ½" by 5½". The Z-frame pedestrian door measures 2'-7½" by 6'-5" with ¾" by 5" V-edged tongue-and-groove boards supported by a picture frame and Z supports made of ¾" by 5" boards.

The east pedestrian doorway that connects to Room 102 is original (*Fig. 186*). The 5-panel door measuring 1¾" by 2'-10" by 6'-11" was cut at some point to be a Dutch door. Hardware appears to be original: a 4" tall by 3" wide rim lock and keep, four 3" tall five-knuckle steel butt hinges, and two steel door knobs.

Doorways on the north wall are discussed below under *Subdividing Walls*.

On the west wall is a doorway that appears to predate the Sandburg period. It connects to the pen beneath the West Shed. The door has five horizontal panels, measures 1 $\frac{3}{8}$ " by 2'-4" by 6'-6", and was modified to be a Dutch door. The top section has two 8" barn hinges; the bottom section two 10" barn hinges. The rim lock measures 4" tall by 3" wide and retains its keep and two steel door knobs.

Windows

Three window openings are framed into the south wall where once had been the large vehicle opening. All three are framed for a drop-back sash, two paired on the west side of the pedestrian door, one on the east side. The east window retains its two-light sash, which measures 2'-8" wide by 2'-10" tall. The pair of windows each has a two-light sash that measures 1'-10" wide by 2'-4" tall.

On the west exterior wall is a shuttered opening that sits 4'-10" above the dirt floor. The board-and-batten shutter measures 3'-0" wide by 4'-0" tall and is constructed of $\frac{3}{4}$ " by $\frac{3}{4}$ " boards and battens. The hardware consists of a 3" steel five-knuckle butt hinge and a 6" barn hinge. The shutter is latched with a carved wood swivel.



Figure 174. Goat Barn: Room 101 wall-mounted sash holder.



Figure 175. Goat Barn: gate and wall of east pen, Room 101.

Subdividing Walls, Gates, & Doors

The dividing wall between the north and south sections of the room as well as the walls of the pens are low board walls (the wall between the center and east pens is missing, but ghost marks indicate the same general design). All the dividing walls are crudely constructed using mostly salvaged plank boards of varying sizes, placed as vertical slats with gaps of varying sizes between slats. Wall heights range from about 3'-8" to about 4'-0". Top and bottom rails are a single 2" by 4". Each wall also has a series of 2" by 4"s extending from the floor to the ceiling framing, nailed to the rails and to the ceiling framing, to provide rigidity to the wall.

At the north wall of each holding pen (the north wall of the Original Dairy Barn), is a doorway created by Sandburg to allow passage for kids from the pen to one of the feeding areas in Rooms 107 and 108. The west door is a Z-frame board-and-batten door that measures 1'-10" by 6'-1". The vertical boards measure $\frac{3}{4}$ " by $5\frac{1}{4}$ " and the frame measures $\frac{3}{4}$ " by $3\frac{3}{4}$ ". The hardware includes a 4" steel five-knuckle butt hinge and 5" barn hinge, a 3" tall by 4" wide rim lock, and two steel door knobs.

The middle door on the north wall is a Z-frame board-and-batten door that measures 1'-7" by 5'-10". The vertical boards measure $\frac{3}{4}$ " by $5\frac{1}{4}$ " and the frame measures $\frac{3}{4}$ " by $3\frac{3}{4}$ ". The hardware includes a 3" steel five-knuckle butt hinge and 5" barn hinge, a 4" tall by $3\frac{1}{4}$ " wide rim lock, and two steel door knobs.

The east door on the north wall is a Z-frame board-and-batten door cut to a Dutch door that measures 1'-8" by 6'-6". The vertical boards measure $\frac{3}{4}$ "

by 5¼" and the frame measures ¾" by 2¾". The hardware includes a 3" steel five-knuckle butt hinge, a 4" barn hinge, two 8" barn hinges, and a 4" tall by 3¼" wide rim lock.

Each of the three pens also has a wood slat gate that opens to the south section hay feeding area. The slat gate of the west pen measures 2'-0" by 3'-4". The vertical board slats and frame measure ¾" by 2¾". The slat gate of the middle pen measures 2'-2" by 3'-0". The vertical board slats and frame measure ¾" by 3¾". The slat gate of the east pen is fixed in place. It measures 1'-8" by 3'-6". The vertical board slats and frame measure ¾" by 3¾". Each gate has two hinges, one with a 3" five-knuckle butt hinge leaf with 6" barn hinge leaf, and the second with a 4" five-knuckle butt hinge leaf with 6" barn hinge leaf. All have a wire hook for latching.

Ceiling

The second-level floor joists and underside of the Hayloft flooring are exposed. An added ceiling beam runs north-south at the center of the room.

Finishes

Remnants of whitewash are on the north, west, and south perimeter walls as well as on the ceiling joists and underside of the Hayloft flooring.

Utility Systems

Three porcelain lamp holders are mounted to the bottom of the added ceiling beam.

An electric cord and light socket remain plugged into a porcelain lamp holder.

A ceiling-mounted smoke detector is near the center of the room.



Figure 176. Goat Barn: electric cord and light socket connected to lamp holder in Room 101.



Figure 177. Goat Barn: vent shaft in Room 101 for roof turbine.

Also near the center of the ceiling is a wood-framed passive ventilation shaft measuring 9" by 10".

Pipes for the dry-pipe suppression system are suspended from overhead joists.

Hay Manger

Centrally located in the south section of the room is a hay manger measuring approximately 3'-0" wide by 12'-0" long. Crudely constructed, it consists of four 2" by 4" corner posts with 4'-0" tall "goat mesh" wire fencing (2" by 4" rectangles) stretched around the frame to form an open-top container for hay. Hay is dropped into the Manger from a hatch immediately above in the Hayloft floor.

Graffiti

There is penciled graffiti on the west wall south of the doorway with the letters and date "CMD JAJ FR 05/16/34" (*Fig. 187*). This was during Smyth ownership.



Figure 178. Goat Barn: hay drop installed by Sandburg above hay manger of Room 101.



Figure 179. Goat Barn: original five-panel door on east wall of Room 101 converted to Dutch door.



Figure 180. Goat Barn: graffiti on east wall of Room 101.

Room 102 – Grain Room

This center section of the Original Dairy Barn measures 19'-0" by 28'-0" deep and has a height from the top of dirt floor to the bottom of the exposed ceiling joists of 9'-11". The central location and narrower width suggest it was the principal passageway for the Smyth dairy cows, and the large opening on the south wall, and remnants of a similar opening immediately opposite on the north wall, suggest large vehicles passed through this space.



Figure 181. Goat Barn: Room 102 - Grain Room, looking southeast.



Figure 182. Goat Barn: looking southwest in Room 102. Two posts and beam at center added to support Hayloft floor framing.

Sandburg apparently added the concrete walkway that abuts and parallels the west wall of this room. The west border of the walkway is the dividing wall between Room 101 and 102. The eastern border is a low wall entered through a swing gate near mid-point. Troughs on both sides are filled from the walkway. Goats in Room 101 and 102 reach the feed through stanchions. Doors at each end of the walkway connect to the barnyard and to the Office/Kitchen. Sandburg also added the two sections of grain trough suspended from the east perimeter wall.

Flooring

The flooring of the walkway is poured-in-place concrete.

The flooring throughout the remainder of this room is dirt. During the Sandburg period, shavings were regularly applied and then removed when soiled and replaced. The process continues today, but with sawdust rather than shavings.

Perimeter Walls

The foundation wall and wall sill are visible at sections of the north and south perimeter walls. Also visible at these locations is the balloon framing and the diagonal sheathing applied to the outside face beneath the weatherboards.

The east and west walls are clad with tongue-and-groove boards that measure $\frac{3}{4}$ " by $3\frac{1}{4}$ "

Perimeter Doorways

Intact from the Original Dairy Barn is the large south doorway measuring approximately 10'-0" tall by 10'-0" wide and cased on the exterior only with plank boards, lintel cut, that measure $\frac{1}{2}$ " by $5\frac{1}{2}$ ". It is centrally located on the south wall and retains two later large Dutch doors. Both sections of both doors are framed with 2" by 4"s around the perimeter with a diagonal brace, and sheathed on the exterior with $\frac{3}{4}$ " by $3\frac{1}{4}$ " boards arranged vertically. The sections of replacement material, both framing and board sheathing, do not match the earlier sizes. The western door hardware consists of one 16" barn hinge, three 24" barn hinges, a 5" clip hook, and 6" wire hook; the eastern door has three 16" barn hinges, one 24" barn hinge, a 3" spring hook, and a 6" wire hook. There is also a wood locking bar on the interior side that measures 1" by $3\frac{1}{2}$ ".

This large doorway is the same size as the opening immediately opposite on the north elevation, now infilled with framing and boards and containing a single pedestrian doorway. The infill framing material is 2" by 4"s. The plank boards applied horizontally over the west half of the opening measures $\frac{1}{2}$ " by $4\frac{3}{4}$ ". The plank boards applied vertically measure $\frac{1}{2}$ " by $5\frac{1}{2}$ ". The pedestrian door



Figure 183. Goat Barn: north wall of Room 102. Infilled vehicle door at way left.



Figure 184. Goat Barn: south elevation doorway installed by Sandburg. High-style six-panel door with decorative sticking and raised panels probably installed by Sandburg.

is a three-panel design. It measures $1\frac{3}{8}$ " by 2'-8" by 6'-3". There is a reproduction rim lock, measuring 3" wide by 4" tall, and a keeper, and scars on the door from two previous escutcheons. There are two $3\frac{1}{2}$ " tall steel five-knuckle butt hinges.

Also on the south elevation, just west of the large double-door opening, is an added pedestrian doorway, probably the work of Sandburg. The door is a sophisticated six-panel design, with raised panels on one side and recessed panels with sticking on the other. It matches doors in the Main House, from which it was probably salvaged. This is not a door intended for a barn. It measures $1\frac{3}{8}$ " thick by 2'-6" wide by 6'-11" tall. It has a mortise lock with a beveled $2\frac{1}{2}$ " by 7" plate and steel door knobs. It has three steel three-knuckle butt hinges and a 6" barn hinge.

Opposite on the north wall is a similar door, likely also salvaged from the Main House by Sandburg. It, too, is a six-panel door with raised panels on one side and recessed panels with sticking on the other. It measures $1\frac{3}{8}$ " by approximately 2'-5" by 6'-11". The hardware includes a 3" tall and 4" wide rim lock with two steel door knobs and three-knuckle steel butt hinges. The door has scars for two 4" butt hinges and a 4" by 6" rim lock.



Figure 185. Goat Barn: looking north from walkway of Room 102.



Figure 187. Goat Barn: gate to west walkway. Door beyond connects to Room 101.



Figure 186. Goat Barn: east wall of Room 102 with cased opening for door on track.

The doorway that connects to Room 101 is original and is discussed in that room description.

A cased doorway opening at the center of the east wall appears to be an original feature. It measures 7'-8" wide by 6'-8" tall. The door is 8'-6" wide and 6'-5" tall and slides on a metal track mounted on the Room 103 side of the cross wall. The door is constructed of V-edged boards measuring $\frac{3}{4}$ " by 2 $\frac{3}{4}$ " arranged vertically.

Windows

No windows open into this room.

Subdividing Wall & Gate

A feed trough, probably added by Sandburg, runs north-south about 2'-0" off the east perimeter wall. Crudely constructed from lumber odds and ends, the outer face stands about 4'-0" tall and is sheathed with plank boards of various sizes arranged horizontally; the upper sections are hinged along their long top edge with pairs of hinges; each hinge has one leaf that is a 3" butt type and the other leaf is a 4" barn type. These boards swing up and open to provide access to a wood grain trough attached to the west side. Two 2" by 4" framing boards set vertically are located at about the middle length of the troughs. These 2" by 4"s are attached to the troughs and extend from floor to second-level floor joists where they are also attached. This framing adds stability to the troughs

and provides a frame for a gate between the west walkway and the east side feeding area. The slat gate is similar to those in Room 101. It measures 1'-8" by 3'-10" with a top rail of 1½" by 3¾" and bottom rail of 1" by 10"; the vertical gate slats measure two sizes, ¾" by 3¼" and ¾" by 4½". The hardware includes two hinges, one leaf is a 3" steel three-knuckle butt hinge and the other leaf is a 4" barn hinge, and a 3" wide by 4" tall rim lock with two steel door knobs and a keep.

Ceiling

The second-level floor joists and underside of the Hayloft flooring are exposed.

Finishes

Remnants of whitewash are on the ceiling joists and underside of the Hayloft flooring.

Perimeter walls and doors are painted a barn red color.

Utility Systems

Two porcelain lamp holders are mounted on the bottom of the added ceiling beam that runs north-south at the center of the room. An early 3½" porcelain lamp holder, now inoperable, is near the east wall doorway.

A ceiling-mounted smoke detector is near the center of the room.

Pipes for the dry-pipe suppression system are suspended from overhead joists.

Room 103 – Hay Room

The room measures 28'-0" wide by 28'-0" deep and has a height from the dirt floor to the bottom of the exposed ceiling joists of 9'-11."

This east section of the Original Dairy Barn, with small shuttered openings high on both the north and south walls, was likely the milking area for the Smyth Guernseys.

Sandburg added the large hay manger at the center of the room and the Hayloft access doorway near the front of the building for receiving hay.

Flooring

The flooring is dirt. During the Sandburg period, shavings were regularly applied and then removed when soiled and replaced. The process continues today, but with sawdust rather than shavings.



Figure 188. Goat Barn: south wall of Room 103 - Hay Room. Hay manger at center of the room is to the right.



Figure 189. Goat Barn: Room 103 looking northeast. Shuttered window opening of Dairy Barn is high on north wall.



Figure 190. Goat Barn: modern replacement sill (L) abuts deteriorated south wall sill (R). Both sit on a low foundation wall of mortared granite stone.

Perimeter Walls

The foundation wall and wall sill are visible along the north, east, and south perimeter walls. Also visible at these locations is the balloon framing and the diagonal sheathing applied to the opposite face. The balloon framing of the west wall, a cross wall, is also visible.



Figure 191. Goat Barn: track door on west wall of Room 103.



Figure 192. Goat Barn: overhead rail for track door of Room 103.



Figure 193. Goat Barn: two doors of north wall of Room 103 were added by Sandburg. Original Dairy Barn window is between them high on wall.

Perimeter Doorways

The large cased opening with overhead track and sliding door is discussed above in *Room 102 - Grain Room*.

The other four doorways in this room were likely added by Sandburg. All were clearly cut into the Original Dairy Barn framing and siding. The two doors on the north wall are a five-horizontal-panel design. The western door measures 1 $\frac{3}{8}$ " by 2'-6" by 6'-6". The hardware consists of two steel five-knuckle three-knuckle ball-pin butt hinges, and a rim lock that measures 3" wide by 4" tall with two steel door knobs. The eastern door measures 1 $\frac{3}{8}$ " by 2'-5" by 6'-5". It has a rim lock 3" wide and 4" tall with two steel knobs, and two steel 4" five-knuckle ball-pin butt hinges.

The door on the east elevation opens onto an enclosed passageway that connects to the adjacent Horse Barn. The door is a six-horizontal-panel design and measures 1 $\frac{3}{8}$ " by 2'-8" by 6'-8". It has a rim lock that measures 3 $\frac{1}{4}$ " tall by 4" wide, one steel door knob, no keep, and no escutcheon. It has a 4" steel butt hinge and a 4" barn hinge.

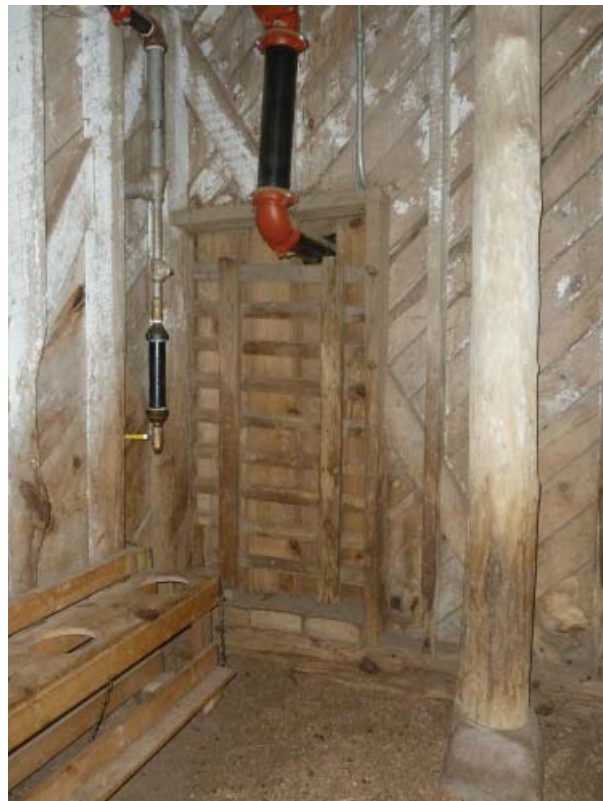


Figure 194. Goat Barn: doorway on east wall to Horse Barn.



Figure 195. Goat Barn: south wall of Room 103 with Sandburg's drop-back windows. Enclosure for Sandburg's mid-level landing for Hayloft is at top left.



Figure 196. Goat Barn: Original Dairy Barn window opening with board-and-batten shutter on north wall of Room 103.

The door on the south elevation is a Z-framed board-and-batten Dutch door matching other added doors. It measures 3'-6" by 7'-2". The perimeter frame and diagonal brace measure 1 $\frac{3}{4}$ " by 5 $\frac{1}{4}$ ". The boards measure $\frac{3}{4}$ " by 5 $\frac{1}{4}$ ". It has two 16" barn hinges, two 12" barn hinges, and two 6" hooks-and-eyes.

Windows

Four window openings are on the south wall. All have drop-down two-light sash that measure 2'-8" wide by 2'-10" tall. All have a Type D muntin and are modifications added by Sandburg (*Appendix A—Sheet 13*).

Three original window openings are on the north wall, previously an exterior wall. The eastern and western openings retain their exterior board-and-batten shutters; the shutter is missing from the middle opening. The shutters measure 2'-8" tall by 2'-5" wide. The battens measure $\frac{7}{8}$ " by 2 $\frac{3}{4}$ " with $\frac{1}{2}$ " bevel along the long edges. The vertical tongue-and-groove boards measure $\frac{3}{4}$ " by 3 $\frac{1}{4}$ ".

Ceiling

The second-level floor joists and underside of the Hayloft flooring are exposed.

Finishes

Remnants of whitewash are on the ceiling joists, the underside of the Hayloft flooring, the exposed wall framing and back side of the diagonal siding applied to the exterior face of the wall framing.

Utility Systems

The electrical panel box for the building is located on the east side of the south doorway. On the other side of the door is a duplex outlet and a light switch.

A porcelain lamp holder is mounted to the bottom of the added ceiling beam that runs east-west at the center of the room. An inoperable lamp holder is nearby. A second porcelain lamp holder is near the east perimeter wall and, again, an inoperable lamp holder is nearby.

A wood-framed ventilation shaft, matching the one in Room 101, is near the center of the ceiling.

A ceiling-mounted smoke detector is over the hay manger.

An ABC Type hand-held fire extinguisher is at the south end of the hay manger.

Pipes for the dry-pipe suppression system are suspended from the overhead joists.



Figure 197. Goat Barn: Room 103 hay manger and ladder to Hayloft.



Figure 198. Goat Barn: hay manger hangs from west wall of Room 103.

Hay Mangers

A large free-standing hay manger measuring 3'-3" wide by 17'-8" long was installed by Sandburg slightly west of the center of the room. Like the one installed in Room 101, it has a frame of 2" by 4" studs that extend from floor to joists above and the manger is assembled from plank boards of various sizes. A hatch in the Hayloft floor allows hay to be dropped into the manger.

Sandburg also installed a wall manger of comparable materials that fills the entire west wall south of the cased opening.

Ladder to Hayloft

Near the south end of the hay manger, a wood ladder is attached that leads to the Hayloft. The two rails are 2" by 4" framing that is notched for rungs of plank boards measuring $\frac{3}{4}$ " by 3 $\frac{1}{4}$ " set 13 $\frac{1}{2}$ " o.c.

Room 104 – Birthing Stalls

This room is in the North Shed Addition. The room measures 21'-0" wide by 15'-6" deep and has an approximate height from the dirt floor to the bottom of the exposed ceiling joists of 8'-1".

This area was outside and behind the Original Dairy Barn. When the outer walls were enclosed by Smyth is not certain, though it preceded construction of the Silo. Nor is the original use of this end of the addition known. Sandburg later made great modifications to the entire North Shed Addition for the goat operation. This room was subdivided into pens and feeding troughs were added. The room is currently used for storage and is not accessible by the public.

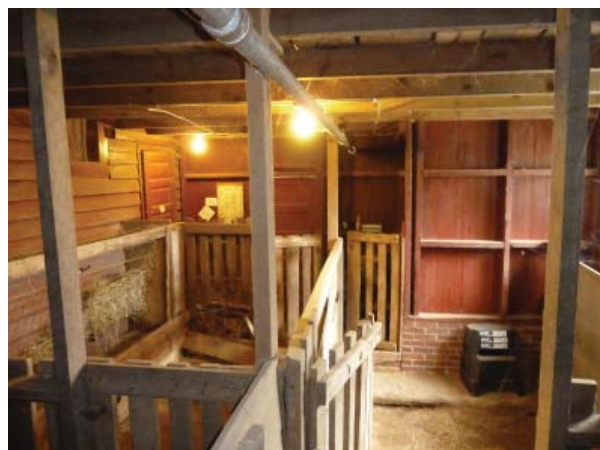


Figure 199. Goat Barn: looking west in Room 104 - Birthing Stalls. Birthing stalls in foreground, hay manger at left.

Flooring

The concrete flooring of Room 105 - Milking Parlor extends about 6'-0" into this room.

The remainder of the floor area is dirt. During the Sandburg period, shavings were regularly applied and then removed when soiled and replaced. The process continues today, but with sawdust rather than shavings. Today, the dirt floor is left undisturbed.

Perimeter Walls

The south wall of this room is the original north wall of the Dairy Barn. The original weatherboard siding remains in place. This weatherboard is a plank board that measures $\frac{7}{8}$ " by 7" with a $5\frac{1}{2}$ " exposure.

At the north and east walls, a low section of the stone foundation is visible. Above the foundation, tongue-and-groove boards measuring $\frac{3}{4}$ " by 6" or 7" are applied horizontal to the framed wall.

Two sections of the room's west wall represent two separate construction campaigns. The southern section is associated with construction of Room 106 - Milking Parlor. The northern section is associated with construction of Room 105 - Closet.



Figure 200. Goat Barn: in Room 104 a raised-panel door (L) to Room 103 and a flush-panel door (R) to Room 106.

The base of the southern section is a one-wythe-thick brick wall that is 1'-9" tall. These are smooth-sided machine-made bricks that measure $2\frac{1}{4}$ " by $3\frac{3}{4}$ " by $8\frac{1}{4}$ " and range from orange-red to red in color. Atop this masonry base is the exposed 2" by 4" framing and back side of the vertically applied tongue-and-groove $\frac{3}{4}$ " by $5\frac{1}{2}$ " boards for the east wall of Room 106 - Milking Parlor.

The base of the northern section is also a one-wythe-thick brick wall standing 1'-9" tall. These are the same serrated bricks found in the chimneys of this Barn and the Milk House as well as sections of the foundation for the Milking Parlor. Atop this masonry base is the exposed 2" by 4" framing and backside of the vertically applied tongue-and-groove $\frac{3}{4}$ " by $2\frac{1}{2}$ " boards of the east and south walls of Room 105 - Closet.

Perimeter Doorways

The south wall doorway is discussed above in *Room 103 - Hay Room*.

The west wall doorway connects to Room 106 - Milking Parlor and was probably installed when that room was laid out by Sandburg, though the door itself may be salvaged from another location. The door is a five-horizontal-panel design. It measures $1\frac{3}{8}$ " by 2'-5" by 6'-5". It has a $3\frac{1}{4}$ " wide by 4" tall rim lock with keep and two steel door knobs. There are two 4" steel five-knuckle ball-pin butt hinges. The design of door and hardware are typical of the early twentieth century.

The third doorway is on the exterior north wall and holds two doors, a solid door and a screen door. On the interior side a board door measures $1\frac{3}{8}$ " by 2'-10" wide. On this door's exterior face, boards that measure $\frac{3}{4}$ " by 5" to $5\frac{1}{4}$ " are arranged vertically while on the interior face, boards that measure $\frac{3}{4}$ " by 5" frame the perimeter, with each corner mitered, and create a lock rail. On the lock rail is a rim lock that measures 3" tall by 4" wide and has two mineral door knobs. There are two 4" steel five-knuckle butt hinges. The exterior door consists of a wood frame and wire mesh. The wood frame is comprised of plank boards that measure $1\frac{1}{2}$ " by $3\frac{1}{2}$ " with mitered corners. Goat fencing is stretched across the frame. It has a rim lock that measures $3\frac{1}{4}$ " wide by $3\frac{3}{4}$ " tall with steel door knobs. It has two reused 8" barn hinges.



Figure 201. Goat Barn: original shuttered window opening and siding of Dairy Barn on south wall of Room 104.

Windows

Two windows are on the north wall. Each contains a single six-light wood sash from a double-hung sash window. Each sash has a Type B muntin and is side-hinged on a jamb to function as a casement window (*Appendix A—Sheet 13*).

Two Original Dairy Barn window openings are on the south wall. Each retains its 5½" wide casing assembled in a picture frame design. The west opening is missing its shutter and the opening is blocked with a section of plywood; the east window retains its shutter described in *Room 103 - Hay Room*.

Subdividing Pens & Gates

Sandburg divided this room into four pens. All the dividing walls are crudely constructed using mostly salvaged plank boards of varying sizes assembled as vertical slats. The gaps between slats also vary. The dividing walls are typically about 4'-0" tall.

As constructed elsewhere, a long section of a 2" by 4" frames each jamb of the gates and is attached to ceiling joists for stability.



Figure 202. Goat Barn: gate to birthing stall (R) and bucket holder (L) in Room 104.

The west gate of the northwest pen measures 1'-11" wide by 3'-10" tall and has two 8" barn hinges. The west gate of the northeast pen, connecting with the northwest pen, measures 2'-4" wide by 3'-10" tall and has two 8" barn hinges. The west gate of the southwest pen measures 2'-1" wide by 3'-10" tall and has two 8" barn hinges. The west gate of the southeast pen, connecting with the southwest pen, measures 2'-2" by 3'-10" and has two 12" barn hinges.

Ceiling

The second-level floor joists and underside of the deck are exposed and visually act as a ceiling. The joists are circular sawn and measure 2" by 6" placed at various spacing near 24" o.c.

Finishes

Remnants of whitewash are on the ceiling joists and underside of the deck boards.

The doors, windows, and board siding and trim of the four perimeter walls are painted barn red.

Utility Systems

Two disconnected porcelain lamp holders are mounted to the bottom of the ceiling joists. Two

modern plastic versions of the porcelain type are operational. The light switch is mounted on the west wall adjacent to the doorway to Room 106 - Milking Parlor.

A ceiling-mounted smoke detector is near the center of the room.

Pipes for the dry-pipe suppression system are suspended from the overhead joists.

Hay Mangers, Grain Troughs, & Bucket Holders

Sandburg added hayracks and troughs using a variety of salvaged boards and sections of wire fencing. All are crudely assembled.

One hayrack is along the north section of the east wall. A section of goat fencing about 2'-0" wide is stretched between sections of 2" by 4"s. A wood trough below is formed against part of the north and east walls using salvaged framing members.

Another hayrack extends the length of the south wall. In this instance a section of decorative fencing with a scalloped top edge is stretched between 2" by 4"s to form the rack. Below is a wood trough formed from framing lumber.



Figure 203. Goat Barn: hay manger on east wall of Room 104.



Figure 204. Goat Barn: metal bucket holder in Room 104.

Another trough formed with framing members runs along the north wall.

In the stalls are bucket holders, metal rings that attach to walls or posts.

Room 105 – Mechanical Room

This small ancillary room measures 4'-0" wide by 5'-0" deep and has an approximate height from the top of floor to ceiling of 8'-4½."

This area also was outside the footprint of the Original Dairy Barn, and the use of this particular space after construction of the North Shed Addition is not known. The layering of construction materials indicate this room was created after the east wall of Room 106 - Milking Parlor was in place.

In this room is equipment from the De Laval Separator Company associated with the milking operation. Flammable liquids are also stored here. The room is not accessible by the public.

Flooring

The flooring of this room is a poured-in-place concrete slab.



Figure 205. Goat Barn: northeast oblique of Room 105 - Mechanical Room.



Figure 206. Goat Barn: southeast oblique of Room 105.

Perimeter Walls

The north and west walls preceded construction of the east and south walls. The brick base of the west wall is a continuation of the south section of the west wall discussed in *Room 105 - Birthing Stalls*.

The brick base of the south and east walls is also discussed in *Room 105 - Birthing Stalls*.

All four walls are covered with tongue-and-groove beaded board measuring $\frac{3}{4}$ " by $2\frac{1}{2}$ ".

Perimeter Doorways

The north doorway has a five-panel door that measures $1\frac{3}{8}$ " by $2'-11"$ by $6'-4\frac{1}{2}"$. The panels, of equal size, are recessed and arranged in a vertical stack. The door retains an oval steel key escutcheon and steel door knob.

The west wall doorway connects to Room 106 - Milking Parlor and has a five-panel door. The panels are raised. The door measures $1\frac{1}{4}$ " by $2'-5\frac{1}{2}"$ by $6'-4\frac{1}{2}"$ and was salvaged, as indicated by the scars from multiple hardware.

Windows

There are no windows in this room.

Ceiling

The same beaded board of the walls also covers the ceiling running east-west.

Finishes

The beaded board of the walls and ceiling are unpainted.

The door to Room 106 - Milking Parlor has a well-worn gray-green top coat of paint.

Utility Systems

A wall-mounted porcelain lamp holder is on a utility box mounted over the doorway to Room 106 - Milking Parlor. White vinyl clad electrical wiring is identified as "Cerro A."

An abandoned electrical panel is over the doorway to Room 106.

Pipes for the dry-pipe suppression system are suspended from the overhead joists.

Shelving

Two plywood shelves measuring $\frac{3}{4}$ " by 1'-8" deep by 3'-8" wide span the space between the east and west walls, blocking use of the exterior door.

Room 106 – Milking Parlor

This room measures 17'-6" wide by 15'-6" deep and has a height from the top of floor to ceiling of 8'-6".

Little is known about the early use or appearance of this area, which was outside the footprint of the Original Dairy Barn. And equally little is known about the use of this particular space after the construction of the North Shed Addition by Smyth and prior to its remodeling by Sandburg.

The floor of this room is 7" lower than the adjacent rooms to the south in the Original Dairy Barn, Room 102 - Grain Room and Room 103 - Hay Room. It is also approximately 1'-0" higher than the concrete walk opposite the north wall doorway.



Figure 207. Goat Barn: Room 106 - Milking Parlor looking northwest.



Figure 208. Goat Barn: Room 106 looking northeast. Milking stations at left.



Figure 209. Goat Barn: Room 106 looking west. Stanchions and bucket holders of milking stalls at left.

The room is not accessible by the public. The two south elevation doors are kept open, though cordoned off, as is the door on the north wall which allows viewing, but not physical access.

Flooring

The flooring of this room is a poured-in-place concrete slab.

Perimeter Walls

All four walls have a masonry base parged with stucco painted white. Atop this base are boards arranged vertically and nailed to the wood frames. The boards measure $\frac{3}{4}$ " by 5½". Along the north wall the stuccoed masonry base extends 1'-6" into the room at height of 1'-0". The top edge is beveled.

Perimeter Doorways

Seven doorways access this room. The western and eastern doorways on the south wall are discussed in *Room 102 - Grain Room* and *Room 103 - Hay Room* respectively.



Figure 210. Goat Barn: east wall of Room 106. Doors connect with Rooms 105 (L) and 104 (R).



Figure 211. Goat Barn: doorway leading to Connector and Milk House.



Figure 212. Goat Barn: southwest oblique of Room 106. Two doors on south wall connect with Rooms 103 and 102. Door at right connects with Room 107.

The southern and northern doorways on the east wall are discussed in *Room 104 - Birthing Room* and *Room 105 - Mechanical Room* respectively.

The doorway on the north wall opens onto a covered concrete walk leading to the adjacent Milk House. Its five-panel door measures 1" by 2'-6" by 6'-6". The panels, of equal size, are raised on both faces and arranged in a vertical stack. The door retains early door hardware including a 3" wide and 4" tall rim lock, with keep, and two steel door knobs. There are two 4" ball-pin butt hinges. There are also a modern 6" hook for securing the door in an open position for viewing, and a modern 4" zinc bolt for securing the door in a closed position.

Two west wall doorways connect with Room 107 - Office/Kitchen. Both doors are Z-frame board-and-batten. The southern door measures ¾" by

2'-0" by 5'-7" with ¾" by 5⅝" boards set vertical, and battens and diagonal in a Z pattern measuring 1⅜" by 3½". The north door measures ¾" by 2'-0" by 5'-11" with ¾" by random-width boards set vertical, and battens and diagonal in a Z pattern measuring 5/4" by 3⅝".

Windows

Two windows are on the north elevation. Both are double-hung wood sash with six-over-six lights and Type A muntins (*Appendix A—Sheet 13*).

Ceiling

The same board of the walls also covers the ceiling running east-west. There is a 1" corner round that circles the room at the juncture of walls and ceiling.

Finishes

The boards of the walls and ceiling, as well as window sash, doors, trim, and parging on the masonry wall bases, are painted white.

Utility Systems

Three lighting fixtures are mounted on the ceiling. On the east side of the room is an early porcelain lamp holder with pull cord mounted atop a metal utility box. On the west side of ceiling is a modern plastic version of a porcelain lamp holder. Near the center of the ceiling is a 1950s-era fluorescent lighting fixture for two 24" bulbs.

A single-pole light switch is on the east wall near the north doorway, and a second one on the south wall between the two doorways.

A 1950s-era three-blade electric exhaust fan is mounted on the ceiling close to the south wall.

A 6"-diameter floor drain is near the south door of the west wall

A porcelain basin is on the south wall. It is a single-bowl 1960s-era design and measures 1'-7" wide by 1'-5" long.

A hose bib is on the east wall.

Pipes for the dry-pipe suppression system are suspended from the ceiling.

A ten-pound ABC Type dry chemical handheld fire extinguisher is on the north side of the northern door on the west wall.

Milking Stations

A poured-in-place milking station was installed by Sandburg. A concrete ramp leads from the south door of the west wall to six milking stations on a raised concrete platform.

Wood stanchions secure the goats at the milking stations. A second goat ramp leads down at the east end of the stations.

Adjacent to the descending ramp is a wooden gate that controls the flow of animals. The slat gate, hung 6" above floor level, measures 2'-2" wide by 3'-0" tall.

Overhead 1½" galvanized pipes for the milking apparatus (The De Laval Separator Company – New York/ Chicago/ San Francisco) connect with the Mechanical Room and are capped as they exit the building.

Cabinets, Shelving, Braced Table & Miscellaneous Features

In addition to numerous types of equipment associated with the building systems noted above are a number of items that were part of the goat milking operation and are physically attached to the building.

A blackboard on the east wall measures 2'-0" by 2'-6" and sits in a frame, open at the top, made of ¾" by 3¼" boards.

Also on the east wall is a shallow wood cabinet. The door measures ¾" by 8½" by 11½" with a 1" hook and eye and two 2" butt hinges.

A metal towel rack is on the east wall adjacent to the basin.



Figure 213. Goat Barn: south wall of Room 106. Wash basin at left. Exhaust fan in ceiling.

On the south wall above the basin is a two-shelf metal cabinet that measures 2'-0" by 2'-0" by 11".

To the right of the basin is a 1950s-era metal paper towel dispenser measuring 1'-2" wide by 7½" tall by 6" deep.

Farther west on the south wall is a wood double shelf unit that measures 10¾" tall by 12" wide by 8½" deep.

Beneath it is a fold-down shelf made from ¾" by 3¼" tongue-and-groove boards. The shelf measures 1'-8" wide by 1'-6" deep.

To the west is a low rounded wooden braced shelf that measures 32" wide by 24" deep by ¾" thick; its bracket measures 1⅝" by 3⅝".

Room 107 – Office/Kitchen

Measuring 15'-6" by 15'-9" this room has a height from the top of floor to ceiling of 8'-7". The floor level of this room is 8" lower than the adjacent rooms to the south, Room 101 - Side Stalls and Room 102 - Grain Room.

This area was initially outside the building footprint of the Original Dairy Barn. Its character or use is not known at original construction nor after this area was enclosed by Smyth. Sandburg presumably installed the early-twentieth century enameled cast iron kitchen sink along the east wall; this room had a partial function as staff kitchen. And with Sandburg's installation of the door on the south wall that leads to the walkway to the front of the barn, this room had direct access to the center of barnyard activities. This room was a part



Figure 214. Goat Barn: southeast oblique of Room 107 - Office/ Kitchen.



Figure 215. Goat Barn: south wall of Room 107. Six-panel door at center opens onto Room 102 walkway to front of barn. Narrow board-and-batten door (R) leads to pens.

of the administrative work of the goat operation. Feed was kept here, and precise records of feed, medicines, schedule and production of each doe were kept daily.

Today, the Park Service uses the room for similar purposes. Staff and volunteers use it as their office, kitchen, and break room. The room is not accessible by the public.

Flooring

The flooring of this room is a poured-in-place concrete slab.

Perimeter Walls

Along the south wall, which was the exterior north wall of the Original Dairy Barn, about 6" of brickwork, part of the wall foundation, is exposed. Above this masonry is the original weatherboard siding.

At the east wall, the wall studs are exposed as well as the backside of the vertical wall boards of Room 106 - Milking Parlor.

Along the north wall, the stuccoed masonry foundation extends about 1'-6" into the room as it does in both flanking rooms. The frame wall that rests on this base is sheathed with tongue-and-groove boards, set horizontally, that measure 3/4" by 7." Modern feed bins and an upright closet unit sit atop the extended masonry base and in front of the board wall.

The west wall is a wood frame wall sheathed with tongue-and-groove boards set horizontally that measure 3/4" by 5 1/2."



Figure 216. Goat Barn: Room 107 looking west. Open six-panel door (L) to Room 102 shows decorative raised panels.

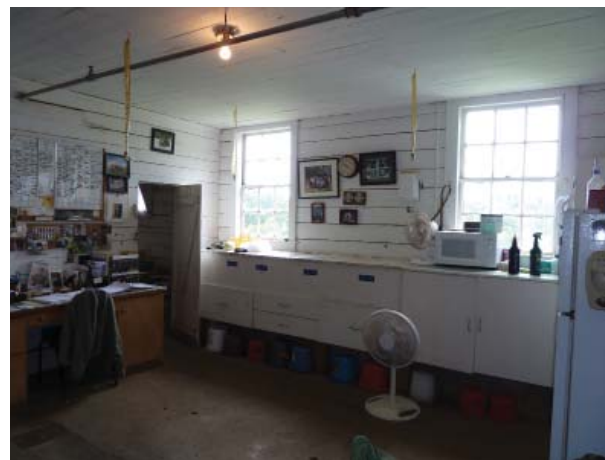


Figure 217. Goat Barn: northwest oblique of Room 107. Feed storage bins along north wall.

Perimeter Doorways

Six doorways access this room. The western and eastern doorways on the south wall are discussed in *Room 101 - Side Stalls* and *Room 102 - Grain Room*, respectively.

The two doorways on the east wall are discussed in *Room 106 - Milking Parlor*.

Both of the two doors on the west wall are Z-frame board-and-batten doors similar to others of this design and apparently were installed by Sandburg. The northern door measures 1'-11" by 6'-0" with the vertical boards and Z-frame battens and diagonal all measuring 3/4" by 3 1/4." It has a carved wooden swivel for latching. The southern door is fixed in the closed position. It measures 2'-0" by 6'-1" and its hardware has been removed.



Figure 218. Goat Barn: sophisticated six-panel door probably from Main House and installed by Sandburg.



Figure 219. Goat Barn: board-and-batten door between Room 106 (L) and Room 107 (R) installed by Sandburg.



Figure 220. Goat Barn: typical carved wood swivel of board-and-batten door connecting Room 107 with 108.

Windows

Two windows are on the north elevation. Both are double-hung wood sash with six-over-six lights and Type B muntins (*Appendix A—Sheet 13*).

Ceiling

The same board of the west wall covers the ceiling running east-west.

Finishes

The boards of the walls and ceiling, as well as window sash, doors, and trim are painted white.

Utility Systems

A flue opening on the north wall opposite the exterior brick chimney is patched.

Near the center of the ceiling is a ceramic lamp holder mounted on a metal electrical box. A 110 v duplex and a 220 v outlet are on the north wall. A subpanel and duplex are on the east wall. An abandoned panel is on the north wall.

An enameled cast iron sink, measuring 1'-8" by 6'-0," is mounted on the east wall. The sink, which dates to the early-twentieth century, has modern chrome fixtures. It has a copper supply line, PVC trap, and galvanized drain line.

A Rheem 20-gallon electric water heater is beneath the sink.

Several sections of abandoned pipes are in the east wall.

A 6" diameter floor drain is in the southwest quadrant of the room.



Figure 221. Goat Barn: early twentieth-century porcelain-on-iron sink of Room 107 probably installed by Sandburg.

A pipe for the dry-pipe suppression system is suspended from the ceiling.

A ten-pound ABC Type dry chemical handheld fire extinguisher is on the east side of the eastern door on the north wall.

Cabinets & Miscellaneous Features

In addition to the components of various building systems noted immediately above, there are accoutrements attached to the building that benefit the operation of a kitchen in regular use.

On the east wall above the sink is a modern wall cabinet. It is constructed of plywood, has four doors and two shelves, and measures approximately 4'-9" wide by 2'-0" tall by 1'-1" deep.

Associated with the sink are a metal soap dish and a metal paper towel dispenser.

Room 108 – Baby Goat Feeding Room

Measuring 15'-6" by 13'-0" this room has a height from the top of floor to ceiling of 8'-7". The floor level of this room is approximately 8" lower than the adjacent room to the south, Room 101 - Side Stalls.

The area of this room was initially outside the building footprint of the Original Dairy Barn. Its character or use at that time is not known. Nor is the design or use known after the North Shed Addition was enclosed by Smyth. Sandburg poured the concrete flooring, installed pens, and created north wall doorways to create a Baby Goat Feeding Room.



Figure 222. Goat Barn: southeast oblique of Room 108 - Baby Goat Feeding Room.



Figure 223. Goat Barn: feeding stalls in Room 108 with depressions in concrete floor for holding feeding bowls.

Today, the Park Service uses the room for storage, primarily feed, rain gear, and old files. The room is not accessible by the public.

Flooring

The flooring, installed by Sandburg, is a concrete slab formed to create two rows of feeding areas for young goats. Molded into the concrete are rows of circular depressions to hold feeding bowls.

Perimeter Walls

Along the south wall, which was the north wall of the Original Dairy Barn, about 6" of stuccoed

masonry, part of the wall foundation, is exposed. Above this masonry is the original weatherboard siding.

At the east wall, the stuccoed masonry base stands approximately 1'-3" high on which stands the 2" by 4" wall framing of sill, studs, and wall plate, which are exposed, as well as the backside of the horizontal wall boards of Room 107 - Office/Kitchen.

Along the north and west walls, the stuccoed masonry foundation extends about 1'-6" into the room as it does in Room 107 - Office/Kitchen and Room 106 - Milking Parlor. The frame wall that rests on this base is sheathed with tongue-and-groove boards, set horizontally. At the north wall, the boards measure $\frac{3}{4}$ " by 3" or 7". At the west wall, the boards measure $\frac{3}{4}$ " by 5" or 7".

Perimeter Doorways

Five doorways access this room. The two south wall doorways with Z-frame board-and-batten doors installed by Sandburg are discussed in *Room 101 - Side Stalls*.

The two east wall doorways connecting with Room 107 - Office/Kitchen were probably installed by Sandburg also and are discussed in *Room 107 - Office/Kitchen*.

The fifth doorway is on the exterior west wall. The door is a board-and-batten design. It measures $\frac{3}{4}$ " by 3'-1" by 6'-10" with tongue-and-groove boards measuring $\frac{3}{4}$ " by 4". It has three five-knuckle 4" ball pin butt hinges.



Figure 224. Goat Barn: south wall of Room 108 has two board-and-batten doors added by Sandburg. Door on west wall (R) connects with West Shed Addition.



Figure 225. drop-back windows on north wall of Room 108.

Windows

Two windows are on the north wall. Each contains a single four-light wood sash from a double-hung sash window. Each sash pivots inward on its bottom rail to lay back onto a wood rack. Each sash has both Type C-1 and Type C-2 muntins (*Appendix A—Sheet 13*).

Subdividing Pens & Gates

Sandburg divided the room into two pens with three gates. The gates and pens work in concert with the two doors on the south wall that connect to the holding pens in Room 101 - Side Stalls. As elsewhere, salvaged boards and hardware are often employed and the design and workmanship emphasizes utility as opposed to craftsmanship.

The side fences of the pens, called stanchions, are about 3'-4" tall and constructed of $\frac{3}{4}$ " thick plank boards of various widths arranged both vertically as slats and horizontally as rails. The width of gaps between boards also varies. Adjacent slats are notched to provide head openings for the young goats to feed from bowls on the other side and to prevent them from eating their neighbor's feed.

The gates are constructed of $\frac{3}{4}$ " plank boards of varying widths arranged vertically as slats and horizontally as rails. The north gate measures 1'-9" wide by 3'-4" tall with $\frac{3}{4}$ " by 2 $\frac{1}{2}$ " vertical slats and diagonal brace for Z-frame. The battens measure 5/4" by 3". There are two 3" five-knuckle butt hinges.

The middle gate measures 1'-8" wide by 3'-4" tall with $\frac{3}{4}$ " by 2 $\frac{1}{2}$ " vertical slats and the Z-frame of 1' by 2 $\frac{3}{4}$ " plank boards. It has a twist latch. One



Figure 226. Goat Barn: typical gate design for feeding pens in Room 108.

hinge is a 2½" five-knuckle butt hinge. The other hinge is a 3" five-knuckle butterfly hinge.

The north gate measures 1'-11½" wide by 3'-9" tall with ¾" by 2½" vertical slats and the Z-frame of 1' by 2¾" plank boards. It has two five-knuckle 3" butt hinges.

As constructed elsewhere, a long section of a 2" by 4" framing forms each jamb of the gates and attaches to ceiling joists for stability.

Ceiling

Tongue-and-groove boards measuring ¾" by 5½" are arranged to run east-west.

Finishes

The doors, windows, and board siding and trim of the four perimeter walls, the ceiling boards, and the pen fences and gates are painted white. Exceptions are an unpainted rail of the east fence and another of the south gate.

Utility Systems

Two lamp holders are mounted on the ceiling. One is a disconnected porcelain lamp holder probably dating from the Sandburg period. The other,

operational and mounted on a metal electrical box, is a modern plastic version of the porcelain type.

Two light switches are mounted on the west wall adjacent to the doorway to Room 107 - Office/Kitchen.

There are two hose bibs with galvanized supply pipe, one on the east wall and one on the west.

Room 201 – Hayloft

The loft as one large open room measures 28'-0" by 67'-0." Along the north and south perimeter walls, the height from the top of floor to underside of roof rafters is about 5'-0." The height of top of floor to underside of roof ridge pole is 16'-0."

The floor area of this room is divided into three sections by two rows of 2" by 6" wall studs, the balloon framing of the two first-level cross walls that extend into the Hayloft.

This room appears to have always served as a hayloft, as it does now for National Park Service activities. Park Service personnel and volunteers regularly enter the loft but it is not accessible by the public.

Flooring

The original flooring remains. The tongue-and-groove floorboards measure ¾" by 3¼."

Perimeter Walls

The exposed balloon framing extends above the level of the loft flooring and forms the perimeter enclosure. The diagonal sheathing applied to the



Figure 227. Goat Barn: Room 201 - Hayloft looking southwest.



Figure 228. Goat Barn: Room 201 looking northeast.



Figure 229. Goat Barn: screened west wall of Hayloft.

exterior face of the framing is also visible. Along the north and south walls, the wall framing height is 4'-6" above the top of the floor.

Perimeter Doorways

The only interior access to the Hayloft from the first floor level is by way of a ladder in the East Section which is directly over the Hay Room. The opening at the top of the ladder measures 1'-8" by 1'-8" and is covered by a board-and-batten hatch. Both the board and the battens are made of tongue-and-groove boards that measure $\frac{3}{4}$ " by $2\frac{1}{4}$ ".

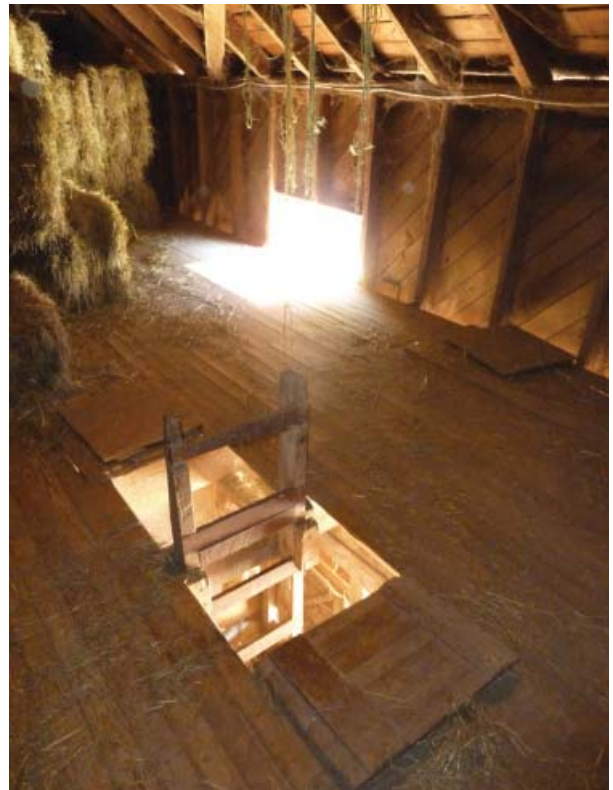


Figure 230. Goat Barn: Hayloft ladder access and hay drop.



Figure 231. Goat Barn: opening hacked into north wall of Room 201 to install shuttered window opening from Original Dairy Barn for access to Room 202.

At the north wall of the East Section is an Original Dairy Barn window unit with its board-and-batten shutter. Hacked diagonal wall sheathing confirms that this was moved and relocated here, placed between two wall studs. The date of installation is unknown but probably coincides with construction of the adjacent Silo. The Silo was built with an opening facing the upper east wall of the Dairy Barn's North Shed Addition. An opening was cut into its east wall opposite the Silo opening. The relocated window unit allows passage between



Figure 232. Goat Barn: mid-level hay hoist at south wall.

the Hayloft and the upper level of the North Shed Addition.

There are two openings along the south wall to facilitate the delivery of hay to the Hayloft. One is at Hayloft floor level above the large doorway of Room 102. The other opening extends partially into Room 103. Both are discussed above in *Exterior Features*.

Windows

There are two identical original windows, one in each gable. Each measures 2'-4" by 3'-8" and has a Z-frame board-and-batten shutter hinged on one jamb. Both the boards and the framing members measure $\frac{3}{4}$ " by 4."

Dividing Walls & Gates

The two dividing walls are defined by the upper extensions of the 2" by 6" studs of the two first-floor cross walls' balloon framing. Both rows of studs have a top plate of two 2" by 6"s laid on the long side. The height from top of floor to top of plate is 4'-6."

The west dividing wall has "chicken wire" or poultry netting applied to one side of the framing. A gate was installed at an unknown time. The gate measures 3'-2" wide by 4'-2" tall. The perimeter gate frame is constructed of 1" by 3" framing members. At the four corners are $\frac{1}{4}$ " by 8" by 8" stiffeners. There are two 3" five-knuckle butt hinges and a 4" hasp.

A number of studs have been removed from the east dividing wall, presumably to ease passage between the center and east room sections.

Ceiling

The exposed roof rafters and underside of the roof deck form the overhead enclosure of this room.

Finishes

The surfaces are without an applied finish.

Utility Systems

At the center of the roof ridge is a gable-roofed ventilator added by Smyth. It is approximately 6'-0" square in plan. The north and south sides are slated to allow warm air to escape from the barn. The east and wide gable sides rise to about 4'-0" above the roof ridge and are covered with weatherboard siding. The ventilator has the same TCS roofing material as the roof of the Original Dairy Barn.

Two rotating metal roof ventilators are on the roof ridge. Each has a wood framed shaft measuring 9" by 10" and extending from roof through the Hayloft and down to the first-floor rooms.

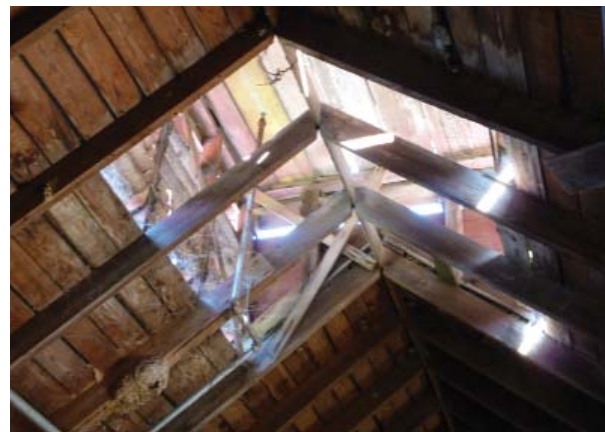


Figure 233. Goat Barn: interior of ventilating cupola as seen from Room 201 - Hayloft.



Figure 234. Goat Barn: one of two vertical ventilator shafts, each connected to a rotating metal turbine on the roof. The shafts extend to first-level rooms.

Four lamp holders are mounted on rafters, two in the West Section and two in the East Section, all near floor hatches for dropping hay to racks below. The lamps of a pair are closely positioned. In each pair, one is a disconnected porcelain lamp holder probably dating from the Sandburg period. The other, operational and mounted on a metal electrical box, is a modern plastic version of the porcelain type.

There are two smoke detectors, one mounted on the side of each shaft of the metal roof ventilators.

Four 2½" o.d. sprinkler pipes are evenly spaced running east-west suspended from rafters.

Floor Hatches & Hay Drops

There were four framed openings in the floor, or "hay drops," to facilitate the dropping of hay to dairy cattle at first floor. Two were along the south wall above the Hay Room and two were on the north wall. Three remain; the eastern drop on the south wall was obliterated when the mid-level hay lift was installed by Sandburg. Each drop measures 2'-0" by 4'-0."

Three floor hatches have been hacked into the flooring, one in each room section, apparently added by Sandburg to allow hay to be dropped into the freestanding central mangers.

Room 202 – North Shed Loft

Created at an unknown date in the tight space between the Birthing Room ceiling and the North Shed Addition roof, this room measures 15'-1" deep by 20'-0" wide.



Figure 235. Goat Barn: Room 202 - North Shed Loft looking southeast. Entry passage at right through reused Dairy Barn window.



Figure 236. Goat Barn: Original Dairy Barn window and shutter installed for access to Room 202.

This room appears to have been created specifically to access the upper portion of the Silo immediately to the east.

Flooring

The plank boards measure 1" by 8" and runs east-west.

Perimeter Walls

The exposed balloon framing extends above the level of the loft flooring to form the framing of the east and north walls. Tongue-and-groove boards measuring about ¾" to 1" thick by 6¾" to 7" wide are applied horizontally to the north wall studs. Tongue-and-groove boards measuring ¾" by 5½" are applied horizontally to the east wall studs.

The south wall is the weatherboard exterior surface of the Original Barn's north wall. The weatherboard is a plank board that measures 1" by 8."



Figure 237. Goat Barn: Room 202 looking southeast. Entrance to Silo is along east wall.



Figure 238. Goat Barn: opening in east wall of Room 202 leads to Silo.

The west wall is constructed of random width boards applied horizontally to studs,

Perimeter Doorways

The only interior access to the North Shed Loft is from the Hayloft by way of an Original Dairy Barn window unit, including its board-and-batten shutter, which was relocated to a raised position on the south wall of this room (the original north wall).

A small opening to access the Silo is hacked into the exterior siding of the east wall. The opening measures 1'-8" wide by 1'-3" tall.

Windows

There are no windows.

Ceiling

The exposed roof rafters and underside of the roof deck form the overhead enclosure of this room.

Finishes

The four walls are painted barn red. The roof rafters and underside of roof deck are whitewashed.



Figure 239. Goat Barn: roof framing of Room 212 sistered to decorative rafters of Original Dairy Barn.

Utility Systems

A porcelain lamp holder is mounted on a rafter.

Character Defining Features

The following features define the character of the Goat Barn:

- South elevation foundation of blocks of warm-gray colored granite; southern section of west elevation foundation of irregularly shaped granite; northern section of west elevation foundation and western section of north elevation foundation of blocks of gray-colored blocks of granite; eastern section of north foundation of blocks of granite mixed with brick. Construction seam in west foundation dividing Original Dairy Barn and North Shed Addition.
- Tapered weatherboard siding of exterior elevations. Plank weatherboard siding of Dairy Barn's original north wall exterior now an interior wall.
- The standing-seam metal roof of the Original Dairy Barn; the red composition shingle roof of the North Shed Addition; and the 5-V gal-

vanized metal panel roofing of the West Shed Addition.

- The gable dormer with hay opening and pulley lift, and the mid-level hay opening of the south elevation.
- The wood board-clad roof ventilator and two flanking wind-driven metal ventilators.
- The attached brick chimney.
- Three surviving original shuttered window openings of Original Dairy Barn's north wall (Room 103 - Hay Room).
- Two-light sash lay-back windows of south elevation; four-light sash lay-back windows plus double-hung six-light sash windows and casement six-light sash windows of north elevation.
- Board-and-batten shutters of the gable ends of the Hayloft.
- Board-and-batten shutter of west wall.
- Pair of Dutch-door styled vehicle doors of south elevation with distinctive vertical boards and battens. The distinctive $\frac{3}{4}$ " by $5\frac{1}{2}$ " plank lintel-cut exterior casing.
- The infilled vehicle opening of the south elevation.
- The two reused raised-panel doors, perhaps from the main house, now of Room 102 - Grain Room.
- The vertical board door on metal track between Room 102 - Grain Room and Room 103 - Hay Room.
- The five-panel doors and board-and-batten doors used throughout the barn.
- The relocated shuttered window opening connecting Room 201 - Hayloft with Room 202 - North Addition Loft.
- The unfinished opening in the east wall of Room 202 - North Addition Loft opposite an opening into the Silo.
- The dirt floors of the Original Dairy Barn and east section of Room 104 - Birthing Room. The concrete floors of the rooms of the North Shed Addition and Room 102 - Grain Room.
- The patched concrete flooring and metal drain covers of the North Shed Addition rooms.
- The wood flooring of the Hayloft.
- The exposed masonry foundations on the interior.
- The exposed balloon framing and diagonal sheathing of the Original Dairy Barn.
- The added post-and-beam supports of the first-floor level of the Original Dairy Barn.
- The board wall and ceiling sheathing of the North Shed Addition rooms.

- The board pens of Room 101 - Side Stall Room, Room 104 - Birthing Room, and Room 108 - Baby Goat Feeding Room.
- The hay mangers and board grain troughs.
- The fixed board ladder to the Hayloft.
- The three original hay drops in the ceiling above Room 103 - Hay Room.
- The three added (hay) hatches in the ceilings above the three first-floor rooms of the Original Dairy Barn.
- The early porcelain lamp holders; the fluorescent light fixture of Room 106 - Milking Parlor.
- The knob-and-tube insulators and attached sections of original wiring.
- The wood framed box vent stacks for the two metal wind turbines.
- The basin of Room 106 - Milking Parlor and kitchen sink of Room 107 - Office/Kitchen.
- The wall cabinets, scale, blackboard, brack-eted shelves and other attached furnishings of Room 106 - Milking Parlor; the remnants of the chalk board of Room 102 - Grain Room.
- The red-painted exterior. The white-painted Room 106 - Milking Parlor.
- The remnants of whitewash in the Original Dairy Barn.

Physical Condition

The following conditions are matters of concern:

- There are significant areas of rot in the perimeter wall sills of the Original Dairy Barn, including the west and south sills of Room 101, at the south elevation doorway and two north elevation doorways of Room 103, and the north section of the east elevation sill.
- The south section of the east elevation sill is a replacement; it is not clear how it is fastened in place.
- Added doorways typically involved notching (weakening) the wall sill as evidenced along the south elevation and original north elevation of the Dairy Barn.
- The diagonal corner braces of perimeter walls and cross walls have been cut in several locations including both of the north wall of Room 101, one at the west end of the north wall of Room 103, and at the north end of east wall of Room 103.
- A series of posts and beams were added at first-floor level of the Original Dairy Barn to give support to the joists of the Hayloft. The top of

the added beams were notched to fit snugly to the joists. But many of the joists do not touch the beam as intended.

- There is extensive rot in the sills of the West Shed Addition.
- There are areas of significant insect damage to roof framing of the West Shed Addition.
- Sections of the West Shed Addition stone walls are in need of repointing.
- There is a significant number of split, warped, and cupped weatherboards as well as loose trim boards, especially along the north elevation.
- There are scattered instances of failing exterior paint at substrate level, suggesting inadequate preparation prior to repainting.
- Rainwater is pooling in the narrow space between this building and the Horse Barn, and between this building and the Milk House.
- The standing seam roof of the Original Dairy Barn is exhibiting rust around the perimeter of the central roof ventilator.
- There are sporadic but significant instances of rust on the 5-V roofing panels of the West Shed Addition.

The Milk House

This building was constructed by the Sandburg family, in two phases, specifically to work in conjunction with the goat milking activities they had placed in the old Smyth Dairy Barn.

By 1947, the center portion of the North Shed Addition was converted to the current goat Milking Parlor. The Original Dairy Barn had been modified to accommodate the daily procession of dairy

goats through the milking process, while other portions of the old barn were converted to other goat rearing activities. The milk collected in the Milking Parlor required immediate chilling and processing, and the Milk House was constructed in 1947 specifically to address those needs.

Construction Characteristics

Architectural Description

The Milk House was sited to work in tandem with the Milking Parlor in the Goat Barn. The new building was placed close to and immediately opposite the Milking Parlor to be easily accessible. The rear door of the Milking Parlor opens to a short covered walkway that leads to the door of the Milk House. This passageway is more than a physical connection between two buildings. It is the functional link between two interrelated activities of the same process.

In comparison with the Goat Barn, with its many goat rearing activities, the Milk House is small. It contains about the same square footage as the Milking Parlor alone.



Figure 241. Milk House: northeast oblique.



Figure 240. Milk House: designed to be a physical and functional extension of the Goat Barn.



Figure 242. Milk House: southeast oblique.



Figure 243. Milk House: southwest oblique.

The footprint of the Milk House is the shape of a block T. The shaft of the T was the first section of the building constructed. The bottom of the stem faces the Goat Barn just eleven feet away. One story in height, it contains three rooms. The first room is a squarish room containing the milk strainer. The next room is L-shaped, with the cream separator immediately inside to the right, and the bottling machine around to the left. The third room is a small restroom accessible only from the exterior. It is in the southeast corner of the building with its door opening to the yard between Milk House and Goat Barn.

The two-story top of the T is the addition built in 1951 or 1952. It is one large room at first-floor level. Here are housed several important machines. In the west section is the milk cooler. In the east section is the large water heater and electrical panel. Along the north wall are storage racks and the large stainless steel double sink.

The upper level of this two-story addition is accessible only from the outside by an attached ladder. The large room was intended for equipment storage.

The footprint of the original bottom section of the T measures 14'-11" wide by 14'-0" deep. The footprint of the added top of the T measures 17'-9" wide by 11'-6" deep.

Structural Systems

Foundations

The design of the foundation is not known.



Figure 244. Milk House: contrasting design of North Section CMU (L) and South Section CMU (R).

Exterior Walls

The building is constructed of two similar but distinct types of decorative concrete masonry units (CMU). Both units are cast to imitate rusticated blocks of stone.

The CMU of the South Section measure 16" wide by 8" tall by 8" deep. The rusticated face, which stands proud by $\frac{1}{2}$ ", has a $\frac{1}{2}$ " wide flush band around its perimeter.

The CMU of the North Section measures 15 $\frac{3}{4}$ " wide by 7 $\frac{3}{4}$ " tall by 7 $\frac{3}{4}$ " deep. The rusticated face, which stands 1 $\frac{1}{2}$ " tall, has a 1" wide flush band around its perimeter.

Interior Walls

The interior walls from floor to ceiling are constructed of gray concrete masonry units, also known as "concrete blocks," that measure 16" wide by 8" tall by 8" deep.

Floor Systems

The floors of both the South Section and the North Section are poured-in-place concrete. There is an irregular seam in the doorway between the North Section (Room 104) and the South Section (Room 103).

Roof Systems

In the South Section, the rafters measure 2" by 6" and are set 48" o.c. and are notched to fit the 2" by 6" wall plate. The rafter tails are 18" and are vertical-cut. The tongue-and-groove boards of the roof deck measure $\frac{3}{4}$ " by 3 $\frac{3}{4}$ " wide.



Figure 245. Milk House: vertical-cut rafter tails. Gable rafters highlighted with trim boards.



Figure 247. Milk House: roof ventilator of North Section.

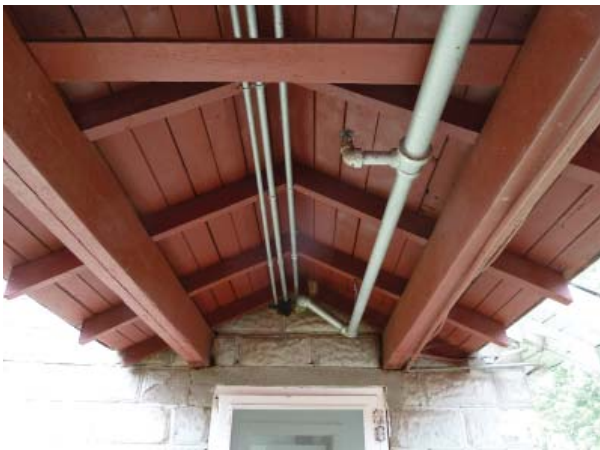


Figure 246. Milk House: Connector between Milk House and Goat Barn. Electrical conduit at ridge and fire suppression piping adjacent.



Figure 248. Milk House: hooks to hang window screen sash.

In the North Section, the rafters measure 2" by 6" and are set 24" o.c. and are notched to fit the 2" by 6" wall plate. A 2" by 6" collar beam occurs in alternating rafter pairs.

The roof of the walkway between the Goat Barn and the Milk House spans the distance without posts. Two pairs of 2" by 12" serve as beams. The top of walk to bottom of beam measures 7'-7" height. The rafters measure 1 3/4" by 3 3/4" and pairs are set 22" o.c. The deck boards measure 3/4" by 4."

Utilities

Heating and Cooling

While the Original Barn was designed to take advantage of sun angles and the prevailing seasonal breezes, the Milk House placement was placed as an appendage to that building to work in unison with the milking of the goats.

Natural ventilation was the primary means of cooling. All windows are an operable double-hung

sash type and had screened sash. A metal roof turbine was added to facilitate passive ventilation. It matches those added by Sandburg to the Goat Barn and Horse Barn.

For heating, an attached brick flue was built on the west side to serve a "wall heater" of unknown design.

Electrical Power

Duke Energy provides electrical service. The electrical meter is on the east wall of the North Section north of the double doors. Panel boxes are located on the north wall of Room 103 next to the separator machinery. An electrical subpanel is on the east wall of Room 104 next to the water heater.

In the South Section, original cloth-wrapped wiring is installed within the CMU walls. The original switches and outlets are in surface-mounted metal boxes with a 3/16" thick metal cover with rounded corners. Both switches and outlets are set at a height of 4'-10" above floor level. Outlets are not grounded. Later switch and outlet boxes are surface mounted and have metal conduit. The ceramic lamp holders are 4" in diameter.



Figure 249. Milk House: electrical meter on east elevation of North Section.

In the North Section, the original outlets are mounted in the walls at a height of 2'-0" above top of floor. The ceramic lamp holders are 4" in diameter but with less of a flange than those in the South Section, and a wider stem with a ring at the lamp end.



Figure 250. Milk House: electrical panels on north wall of Room 103.



Figure 251. Milk House: North Room panel box for fuses.



Figure 252. Milk House: original in-wall duplex (L) and second-generation duplex (R) with conduit.



Figure 253. Milk House: typical ceramic lamp holder, smoke detector, and sprinkler head.

Plumbing

The City of Hendersonville provides water and sewer services.

An early, nonfunctioning water heater is in the northeast corner of Room 104. The supply line for this and other installed equipment is typically steel.

The restroom has a working toilet (replaced after the original cracked) and a basin no longer served by water. The room is reserved for staff.

All first-floor rooms have a floor drain.



Figure 254. Milk House: typical 6" diameter floor drain.

Fire Detection & Suppression Systems

A dry pipe fire suppression system is in the spaces above the first-floor rooms. Sprinkler heads are surface mounted.

A smoke detector is in each first-floor room except the restroom.

A hand-held 10-pound ABC Type fire extinguisher is on the north wall of Room 101.

Exterior Features

Roofs & Rainwater Collection/ Dispersal

The roofing material of both North Section and South Section is a gray-green composition shingle.

The roof above the entrance walkway has the same roofing shingle.

Sheet aluminum is the flashing.

Chimneys

The attached chimney measures 1'-1" wide by 1'-5" deep. The bricks are orange-red, serrated on all four sides, measure 2¼" by 3¾" by 8⅛" and are laid in a gray mortar with flush joint. The top five courses have replacement bricks with a smooth surface and are laid in a tan mortar.

Roof Cornice

Each of the three gables is highlighted with a 1" by 2" trim board attached to the top of the rafter pair.



Figure 255. Milk House: aluminum flashing at chimney and walls. Bricks match those of Goat Barn chimney.



Figure 256. Milk House: top five courses of brick have been replaced as indicated by contrasting brick and mortars.



Figure 257. Milk House: trim boards highlight the gable rafters.

Windows

In the South Section are four six-over-six-light double-hung sash windows. Two are on the east wall and two are on the west. Each measures 2'-6" wide by 4'-8" tall.



Figure 258. Milk House: windows of the two sections vary slightly in size.

In the North Section are three six-over-six-light double-hung sash windows. Two are on the north wall and one is on the west. Each measures 2'-10" wide by 4'-6" tall.

All windows have the same muntin design.

All windows have evidence of hooks for screened sashes on the exterior casing.

Doors

There are four exterior doorways, two on the south elevation of the South Section and two on the east elevation of the North Section, including the only one at second level.

The main entrance doorway on the south elevation has two doors, an exterior screen door and an interior sash door. The two-panel screen door measures 1" thick by 2'-10" wide by 6'-8" tall. The top and bottom panels have aluminum window screen; the bottom panel has an additional layer of ½" galvanized hardware cloth. The hardware includes two 3½" spring hinges and a 4" chrome handle.

The sash door at the main entrance has six lights over two raised horizontal wood panels. It measures 1⅝" thick by 2'-10" wide by 6'-8" tall. The hardware includes two five-knuckle 4" ball-pin butt hinges, a 2¼" wide by 7" tall door plate for mortise lock, and two steel doorknobs.

The doorway for the restroom also has two doors, an exterior screen door and an interior two-panel door. The two-panel screen door measures 1¼" thick by 2'-0" wide by 6'-0" tall. It has the same



Figure 259. Milk House: main entrance doorway.



Figure 261. Milk House: typical ball-pin hinge.



Figure 260. Milk House: mortise lock of main entrance.



Figure 262. Milk House: restroom doorway.



Figure 263. Milk House: hasp and lock of restroom door.

screen material as the east door. It has two spring hinges and a 4" handle.

The interior two-panel wood door measures 1½" thick by 2'-0" wide by 6'-0" tall. It has two 3½" ball-pin hinges, closet style mortise lock, 4" hasp for exterior padlock, and 3" wire hook and eye on the interior.

The doorway at first-floor level on the east elevation has a pair of exterior screen doors and a pair of interior five-panel doors, the top three panels containing glass. Each door measures 2'-0" wide by 6'-7½" tall. The screen doors are 1" thick while the five-panel doors are 1½" thick. Each screen door has two 2½" five-knuckle ball-pin hinges. The pair has a 1½" wide by 4½" long beveled latch plate with two 1½" brass door knobs. Each five-panel door has two 4" ball-pin hinges. Each pair has a mortise lock with beveled plate and door knobs, a 3½" overhead spring latch, and a 3½" foot bolt.

At second-floor level in the east elevation is a board-and-batten door to the attic above the North Section. The boards and Z-frame battens measure ¾" by 3¼". The hardware consists of a 4" hasp and two hinges of a 3" butt leaf with a 4" barn leaf.



Figure 264. Milk House: east elevation doorway.



Figure 265. Milk House: mortise lock of east elevation door.

The doorway is accessed by a wood ladder and attached on the south side of the doorway. The ladder measures 1'-8" wide. The two rails each measure 1⅝" by 3⅝" while the rungs measure ¾" by 2½".



Figure 266. Milk House: board-and-batten door to Attic.



Figure 267. Milk House: looking north through Rooms 101 and 103.

Walkway & Steps

A poured-in-place concrete walkway extends from the back door of the Milking Parlor in the Goat Barn to the front door of the Milk House, a distance of 11'-4".

At the north end of the walkway, the floor of the Milk House is 6" above the top of the walkway. At the south end of the walkway, the top of a concrete step 10" deep by 4'-0" wide by 6" tall is 6" below the floor level of the Milking Parlor.

Interior Features Room-by-Room

Room 101 - Front Room

This is an original room of the building and measures 8'-8" wide by 7'-4" deep.

Flooring

The flooring is poured-in-place concrete.

Baseboards

There are no baseboards.

Walls

The CMU walls are coated with cement plaster.

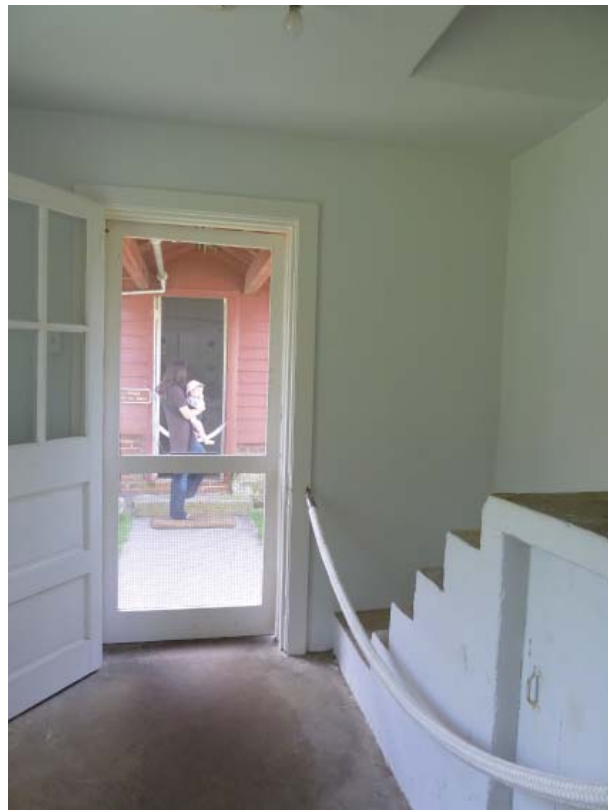


Figure 268. Milk House: Room 101 - Entrance Room looking south through main entrance screen door to Milk Parlor entrance.

Ceiling

Cement plaster is applied to diamond wire lath attached to the bottoms of ceiling joists.

Doorways

The front doorway on the south wall is discussed in the *Exterior Features* section above. The interior casing is $\frac{3}{4}$ " by $3\frac{1}{2}$ " plank board with lintel cut.

A second doorway is on the north wall. It retains its original trim that measures $\frac{3}{4}$ " by $3\frac{1}{2}$ ", but the door, opening inward from the west jamb, is missing.



Figure 269. Milk House: wall-mounted milk strainer and storage area below stairs in Room 101.



Figure 270. Milk House: storage area below stairs.

A small doorway opens to storage area beneath the poured-in-place concrete stairs against the west wall. The board-and-batten door measures 1'-8" wide by 2'-6½" tall. Boards measure $\frac{3}{4}$ " by 5" widths. Battens measure $\frac{3}{4}$ " by $3\frac{1}{2}$ " widths with diagonal brace of $\frac{3}{4}$ " by 2½" width. There are two hinges, both with a 2½" butt combined with a 4" barn. There is a 3" metal handle.

Windows

One window is on the east wall. The window is described in the section Exterior Features- Windows above. The interior casing is $\frac{3}{4}$ " by $3\frac{1}{2}$ " plank board with lintel cut.

Finishes

The floor is cement with no applied finish.

The walls, doors, window sash, trim, and ceiling are painted white.

Utility Systems

A typical $4\frac{1}{2}$ " porcelain lamp holder is on the ceiling. An original switch is on the east side of the entrance doorway. An original outlet is on the west wall.

A hose bib is on the east wall.

The typical 9" by 9" floor drain is at the center of the room's floor.



Figure 271. Milk House: milk strainer.

A smoke detector is on the ceiling.

A hand-held 10-pound ABC Type fire extinguisher is on the north wall east of the doorway.

Milk Strainer

A poured-in-place set of stairs against the west wall leads to a metal milk strainer set high on the wall.

Room 102 - Restroom

This small room measures 4'-3" wide by 5'-0" deep and is original to the building. Today, it is reserved for NPS staff and volunteers.

Flooring

The flooring is poured-in-place concrete.

Baseboards

There are no baseboards.

Walls

The CMU walls are coated with cement plaster.

Ceiling

Cement plaster is applied to diamond wire lath attached to the bottoms of ceiling joists.



Figure 272. Milk House: Room 102 - Restroom looking north.

Doorways

The front doorway on the south wall is discussed in the *Exterior Features* section above. The interior casing is $\frac{3}{4}$ " by $3\frac{1}{2}$ " plank board with lintel cut.

Windows

There is one window in this room and it is on the west wall. The window is described in the section *Exterior Features-Windows* above. The interior casing is $\frac{3}{4}$ " by $3\frac{1}{2}$ " plank board with lintel cut.

Finishes

The floor is cement with no applied finish.

The walls, doors, window sash, trim, and ceiling are painted white.

Utility Systems

A typical $4\frac{1}{2}$ " porcelain lamp holder is on the ceiling. Light switches are on the south wall west of the doorway.

The typical 9" by 9" floor drain is at the center of the room's floor.

A smoke detector is on the ceiling.

Toilet

An undated Gerber toilet is on the north wall, a replacement of the original toilet.

A modern metal paper towel holder and toilet paper holder are attached to the door.

Lavatory Basin

An early twentieth-century 2'-0" wide by 1'-5" deep basin is on the north wall.



Figure 273. Milk House: early basin in Restroom.



Figure 274. Milk House: paper towel and toilet paper holders in Restroom.

Room 103 - Middle Room

This original room is L-shaped. Its longest dimension is east-west measuring 13'-8" long by 5'-3" wide. The bottom of the L is north-south along the west wall and measures 7'-7" long by 4'-3" wide. This room contains the cream separator near the east exterior wall and bottling machine in the toe of the L near the west wall.

Flooring

The flooring is poured-in-place concrete. A seam is visible at the doorway of the north wall, the location of a second slab beginning for the North Section of the building.

Baseboards

There are no baseboards.

Walls

The CMU walls are coated with cement plaster.

Ceiling

Cement plaster is applied to diamond wire lath attached to the bottoms of ceiling joists.

Doorways

The doorway on the south wall is discussed in the description above of *Interior Features - Room 101*.

A doorway on the north wall was originally a window in the north exterior wall. It now accesses Room 104 of the North Section. It has a sash door with six lights over three horizontal panels. The door measures 1 3/8" thick by 2'-9 1/2" wide by 6'-7 1/2" tall. It has a mortise latch with a beveled plate



Figure 275. Milk House: Room 103 - Middle Room looking east towards cream separator and racks.



Figure 276. Milk House: Room 103 looking southwest towards bottling machine. Flue cover is on west wall.

measuring 2¼” wide by 7” tall and matching the one on the front entrance door. The door retains its two 3½” five-knuckle ball-pin hinges. The casing is unique to this building; while the other doors and the windows have a casing that measures ¾” by 3½”, this doorway has a casing that measures ⅞” by 4” wide.

Windows

Two windows are in this room, one on the east wall and one on the west wall. Both windows are described in the section Exterior Features: Windows above. The interior casing for both is ¾” by 3½” plank board with lintel cut.

Finishes

The floor is cement with no applied finish.

The walls, doors, window sash, trim, and ceiling are painted white.

Utility Systems

A typical original 4” diameter porcelain lamp holder with cord is on the ceiling opposite the doorway to the North Section. The switch is on the south wall.

A 4½” diameter porcelain lamp holder without cord is above the bottling machine near the west wall.

Two original electrical outlets are on the south wall. More recent outlets are on the south wall, west wall, and north wall.

Two electrical panels are on the north wall near the separator.

The typical 9” by 9” floor drain is at the center of the room’s floor.

A smoke detector is on the ceiling.

An 8” diameter metal flue cap is on the west wall covering the flue connection.

Cream Separator

The cream separator is near the east wall.

Bottling Machine

The bottling machine is located at the south wall near the west wall.



Figure 277. Milk House: chimney flue cap on west wall of Room 103.

Room 104 - North Room

Constructed as the ground-level room of the North Section, this is the largest functioning room of the building. It measures 16’-6” wide and 10’-3” deep. The milk cooler is on the west side of the room. The large stainless steel wash basins and drying racks are centrally placed and to the north. The water heater is to the rear at the northeast corner.

Flooring

The flooring is poured-in-place concrete. A seam is visible in the doorway of the north wall, the location of a second slab beginning for the North Section of the building.

Baseboards

There are no baseboards.

Walls

The CMU walls are coated with cement plaster.

Ceiling

Cement plaster is applied to diamond wire lath attached to the bottoms of ceiling joists.



Figure 278. Milk House: Room 104 - North Room looking northwest. Milk cooler (L) and wash basins (R) and racks.



Figure 279. Milk House: Room 104 looking northeast. Wash basins (L) and water heater in corner. Electrical panel box next to water heater.



Figure 280. Milk House: Room 104 looking southwest into Room 103. Milk cooler in foreground to right.

Doorways

The doorway on the south wall is discussed in the description above of *Interior Features: Room 103*.

The doorway on the east wall connecting with the side yard is discussed in *Exterior Features: Doors*.

Windows

There are three windows in this room, two on the north wall and one on the west wall. Both windows are described in the above section *Exterior Features-Windows*. The interior casing for all three windows is the typical $\frac{3}{4}$ " by $3\frac{1}{2}$ " plank board with lintel cut.

Finishes

The floor is cement with no applied finish.

The walls, doors, window sash, trim, and ceiling are painted white.

Utility Systems

Three typical original 4" diameter porcelain lamp holders are on the ceiling. One is near the center of the room, a second in the northeast quadrant, and the third in the northwest quadrant. Two original electrical outlets are on the north wall opposite the milk cooler. A third original outlet is on the north wall near the east end. Other outlets are surface-mounted on the north and south walls.

An electrical subpanel is on the east wall near the water heater.

The typical 9" by 9" floor drain is at the center of the room's floor.

A smoke detector is on the ceiling.

Milk Cooler

This large appliance measures 6'-3" wide by 3'-5" deep by 3'-0" tall.

Wash Basins

The stainless steel double basin is 5'-1" wide by 1'-8½" and stands approximately 3'-0" tall.

Drying Racks

Constructed of $\frac{3}{4}$ " round stainless steel pipe, the two-level rack is 10'-2" wide by 8" deep and is suspended from the ceiling.

Room 201 - Attic

Constructed as the upper level storage area of the North Section, this is of equal size as the room below, the largest functioning room of the building. This room also measures 16'-6" wide and 10'-3" deep. It was always intended for use as storage area. A six-light sash door of same design and mortise lock as the main entrance door is stored here.



Figure 281. Milk House: Room 201 - Attic looking west.

Flooring

The floorboards measure 4" wide and run north-south.

Baseboards

There are no baseboards.

Walls

The CMU walls are exposed and rise about 4'-6" above floor level at north and south walls that support the roof rafters.

Ceiling

The underside of roof rafters and roof deck constitute the overhead ceiling.

Doorways

The doorway on the east wall is discussed in the description above of *Exterior Features: Doors*.

Windows

There are no windows.

Finishes

There are no applied finishes.

Utility Systems

There are sprinkler system pipes.

Character-Defining Features

The following features define the character of the Milk House:

- The two distinctly different types of rusticated CMU, one for the South Section of the building and the other for the North Section.

- The exposed roof rafters with vertical-cut rafter tails.
- The decoratively trimmed rafters of the roof gables.
- The composition shingled roofs of the South and North Sections and the Connector with the Goat Barn.
- The double-hung wood sash windows.
- The two-panel exterior screen doors with ½" hardware-wire reinforced lower panel.
- The six-light over two horizontal-panel main entrance door.
- The two-panel door to the restroom.
- The pair of five-panel doors, top three panels with glass, on the east elevation.
- The concrete floors.
- The cement-coated walls and ceilings of the first-floor rooms.
- The white-painted walls, ceilings, doors, window sash, and trim of the first-floor rooms.
- The porcelain lamp holder lighting fixtures.
- The early in-wall electrical outlets.
- The early light switch covers for in-wall electrical boxes.
- The metal floor drains.



Figure 282. Milk House: deteriorated CMU of South Section.

Physical Condition

The following conditions are matters of concern:

- The loss of surface material by the CMUs of the South Section of the building.
- The wall crack that emanates from the top east corner of the restroom doorway.
- The pooling of water in the area between the Milk House and the Goat Barn.
- Reliance on asphalt coating for flashing at chimney and intersection of roofs and vertical surfaces.

The Secondary Buildings & Structures of the Barn Complex

Silo

Description

Constructed adjacent to both the Horse Barn and the rear shed of the Dairy Barn, now the Goat Barn, the Silo had the critical function of creating silage for the Smyth cows and horses. Two openings in the western wall of the circular Silo provided direct connection to both the first- and second-floor levels of the rear shed section of the Smyth barn. Openings to access the Silo were cut into the east wall of the barn's rear shed at both levels; the lower access has been boarded over.

Because the goats did not eat silage, the Sandburgs soon ended its use. Today it is empty.

The shaft of the Silo is circular in plan with an outside dimension of 13'-0" in diameter. The shaft extends without taper to a height of approximately 15 feet. The shaft is centered on a circular base approximately four inches wider in diameter and extending about 10" above grade. Neither the design characteristics nor condition of the base below grade are known. Both the base and shaft above grade are constructed entirely of mortared rusticated blocks of gray granite. There is no fenestration in the shaft save the two openings aligned with the former dairy as mentioned previously. The structure no longer has its roof and the top of the wall has been parged. Therefore, no evidence of roof or attachment is visible. Metal rungs inserted into the north wall create a ladder to the top; today it is blocked by a wood form.



Figure 283. Silo: adjacent to both Horse Barn (L) and Goat Barn (R).



Figure 285. Silo: view from North Shed Addition Loft of Goat Barn to bottom of Silo.



Figure 284. Silo: northwest oblique.



Figure 286. Silo: ribbon joint of exterior stonework.

Commentary on Condition

The visible masonry of both the shaft and base appear to be generally sound despite the top of the structure remaining open to the weather. There are a few small sections on the exterior wall surface that need repointing.

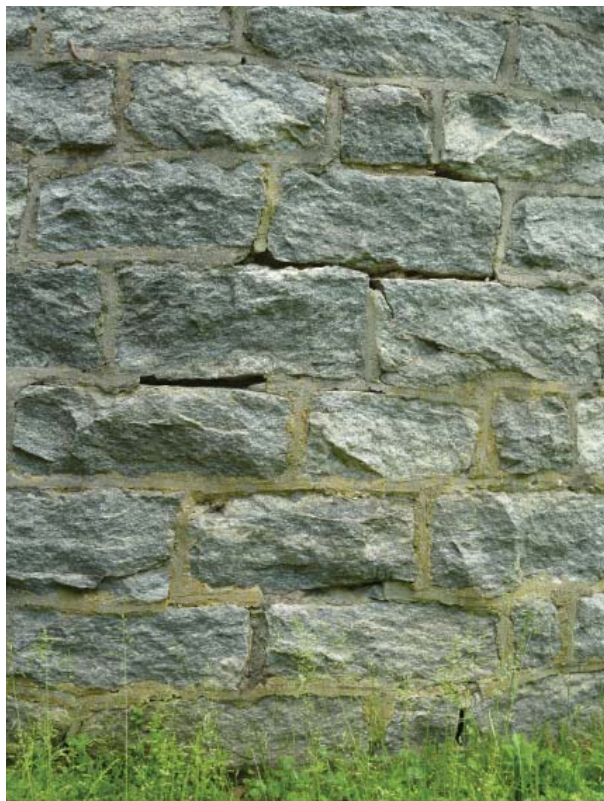


Figure 287. Silo: sporadic instances of deterioration of mortar joints.

Horse Barn

Description

The one and one-half story Horse Barn, measuring about 20 feet wide by 30 feet long, is the second largest building in the barn complex. It sits just a few feet east of the largest building, the Goat Barn. Its front or south elevation aligns with the front elevation of that neighbor.

Behind the Horse Barn, just 4 inches away, is the granite Silo, which stands even closer to the Goat Barn. There is no opening for passage between the Horse Barn and Silo.



Figure 288. Horse Barn: southwest oblique.



Figure 289. Horse Barn: northeast oblique.

This barn probably dates from the early-twentieth century with construction during the Smyth period, as suggested by the building's materials and construction methodology. Sandburg made considerable change to the building, enclosing most of the front with weatherboards. Their initial use was as stables for horses. In later years they converted the building for use in the goat enterprise, adding grain troughs in the large east room, probably adding the doorway and passage to the Goat Barn, and probably adding the two-light window sash.

The foundation is a low perimeter wall constructed of local granite. The wall sills, wall plates, corner posts, intermediate wall posts, and corner diagonals all measure 6" by 6." Between these large posts are 2" by 4" studs.

There are a variety of weatherboards used as exterior siding. All appear to be tapered with a weather exposure ranging from 3¾" to 5¼" and all applied with wire nails. Many are from the Sandburg period; many others are from NPS projects, especially on the north and south elevations. The exterior of the building is painted red.

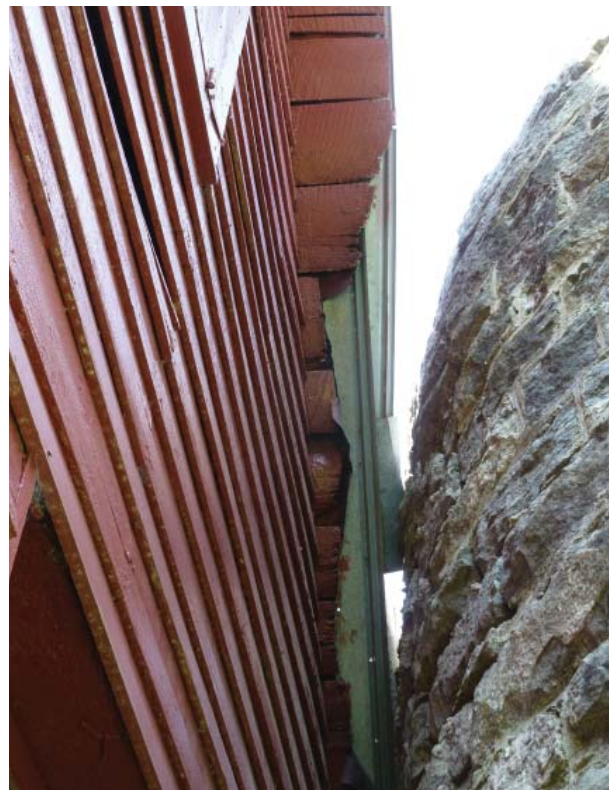


Figure 290. Horse Barn: north gable roof trimmed for Silo.



Figure 291. Horse Barn: typical two-light window sash.

There are three window openings. The two on the east wall are probably original and measure 3'-4" wide by 2'-7" tall; their one-over-one-light sash are later. Both operate awning style opening inwards with two 3" butt hinges along the top rail and a 1¼" wide by 1½" tall latch on the bottom rail. Both windows have exterior plank board casing that measures 1" by 5½" wide. The north window has the same sash and window hardware but lacks exterior casing, suggesting that it is an added feature.

There are five doorways along the exterior walls, three at first floor level, and two at attic level. At attic level, the framing for both doorways, one in each gable, appears to be original. The north gable has a board-and-batten door that measures 2'-6" wide by 4'-8" tall. The boards measure ¾" by 5¼" and the battens ¾" thick by various widths. The hardware includes two 10" barn hinges and a 3" zinc hook. The casing measures 1" by 5¼" with lintel cut and rain diverter.

The south gable doorway has the same casing and a five-panel door with raised panels on both faces and measuring 2'-6" wide by 6'-5" tall. The hardware includes two 3" butt hinges, a ¾" wide by 3¾" tall rim lock, a closer, a mineral doorknob, and a porcelain knob.

On the first floor, none of the three exterior doorways are early. The one on the south wall is part of an extensive reconstruction effort by Sandburg and later by NPS; the other two on side walls were cut into the existing wall surfaces. The south elevation doorway has a Dutch door that measures 3'-6" wide by 6'-10" tall. The frame members measure 1⅝" by 3½" and the tongue-

and-groove boards measure ¾" by 5¼" wide. The hardware includes four three-knuckle 16" barn hinges, an 8" hasp-with-hook and staple, a 6" hasp, a 6" hasp-with-swivel, and a 4" metal handle.

The east elevation board-and-batten door measures 2'-11" wide by 6'-11" tall. The tongue-and-groove boards measure ¾" thick by 5¼" and 6¾" wide. The battens measure ¾" by various widths. The hardware includes two hinges with a 5½" butt leaf with an 8" barn leaf, and a 6" hasp. Outside the doorway is a grass-covered ramp 4'-8" wide and 6'-0" long with two 10" wide stone cheek walls.

The board-and-batten door on the west wall was probably installed by Sandburg. The door measures 2'-10" wide by 5'-8" tall with vertical boards measuring 1¼" by various widths. The top batten measures 1" by 7½" wide and the bottom batten measures 1" by 10" wide. The two hinges match those on the east door. A rim lock measures 3¼" wide by 3¾" tall with two steel doorknobs.



Figure 292. Horse Barn: first-floor interior looking north.



Figure 293. Horse Barn: first-floor interior looking south.



Figure 294. Horse Barn: northeast oblique, east elevation door and typical window.

The roof is formed by steeply sloped pairs of rafters measuring 2" by 4" and toe nailed at the ridge. The deck boards measure 1" thick by 5" up to 10" wide. The roofing material is 5-V galvanized panels. On the roof ridge is a metal wind-driven ventilation turbine that matches those on the Goat Barn and Milk House; as in the Goat Barn, a wood-framed shaft extends from the turbine through the upper-floor level to the first-floor level.

Inside, the first level has a dirt floor. The top of ground to bottom of joist height is 8'-0." At the exterior walls, the stud and post framing is visible as well as the back side of the exterior weatherboard siding. The east half of the room is a large open area with V-shaped grain troughs made from two plank boards along the north and east walls. The west half of the room is divided into four pens by slatted-board partition walls standing approximately 4'-6" tall. The pen slats measure $\frac{7}{8}$ " by 8" wide. In the northernmost partition wall is a board that retains the accidental pink acrylic overspray from the 2003 encapsulation project.

Each pen has a slatted-board gate. These pens are believed to have been installed by Smyth and left in place by Sandburg.

Electrical power comes overhead from the Goat Barn. The typical early electrical light fixture is a 4" diameter porcelain lamp holder. Two are on the bottom of overhead joists at the pens. Two modern molded-plastic versions of the porcelain lamp holders are attached to the joist in the east portion of the room. Another early porcelain lamp holder is over the loft level south doorway.



Figure 295. Horse Barn: loft looking south.



Figure 296. Horse Barn: loft looking northeast. Rafters are joined with wire nails.

A smoke detector is on a joist near the center of the room.

A 5-pound ABC Type hand-held fire extinguisher is on the east side of the south elevation doorway.

Commentary on Condition

The roofing system is a major concern. The 5-V panels have extensive rust. But more seriously, a large number of nails that hold the panels in place



Figure 297. Horse Barn: rusting, loose, 5-V metal roof panels.



Figure 299. Horse Barn: split, checked, twisted weatherboard siding and failing paint.



Figure 298. Horse Barn: shaded west area remains wet.

have worked their way up and out of a secure bond; the panels are susceptible to be blown out of position or even off the building in a strong wind.

The roof ventilator has extensive rust.

The gutter on the west elevation has a pronounced sag that allows roof runoff to regularly flood the ground immediately below. Because the area is blocked from much sun or ventilation, it is especially prone to stay wet and a breeding area for plants and insects harmful to buildings.



Figure 300. Horse Barn: damage caused by carpenter bees.

The building walls are not plumb; the contributing factors are not immediately clear.

There are a number of split weatherboards.

A number of boards have rot, especially the replacement boards along the north elevation where conditions remain damp for longer periods of time.

Carpenter bees are damaging a number of boards.

The paint on the exterior surfaces appears to be failing at the substrate level, an indication of inadequate preparation prior to repainting.

Shavings Shed

Description

A partially enclosed, five-bay shed, this utilitarian structure is simple in both design and construction. It was built by the Sandburgs in the late 1950s or 1960s. One of its primary functions is an essential component of goat raising and the source of the structure's name.

The name derives from its use for storing wood shavings. The shavings were regularly applied atop the floors of buildings occupied by the goats, then removed when soiled. Sawdust has replaced the shavings, and is currently stored in the two south bays. The process of applying and removing sawdust continues daily, requiring repeated use of this structure.

The shed is also referred to by park staff as the "Storage Shed" because it shelters equipment and various stored materials. The two north bays



Figure 301. Shavings Shed: west elevation.



Figure 302. Shavings Shed: southwest oblique.



Figure 303. Shavings Shed: north elevation.

currently contain farm equipment while the middle bay houses salvaged building parts from the park complex.

Rectangular in plan and measuring 41'-2" long by 18'-3½" deep, the long dimension of the shed is oriented north-south. The north, east and south elevations are completely enclosed with vertical-board siding. The entire west elevation can be open to access the five bays. The two at the north end are permanently open. The middle and two south bays can be closed; two doors set on a long overhead track slide to enclose two of the three bays at any one time.

The vertical framing of the shed is arranged in a grid pattern with three parallel rows of six 4" by 6" or 6" by 6" posts aligned north-south, each post embedded in the ground.

Along the north, east and south exterior walls, two 2" by 4½" are arranged horizontal and nailed to the exterior faces of each post, one just above grade and one at the mid-height of the post. Arranged horizontal and nailed to the top of these posts is a string of 2" by 6½". Connecting the bays of the west elevation are sections of 2" by 10" arranged horizontally end-to-end and nailed to the exterior faces of the posts. Vertically-arranged plank boards of 1" and 5/4" thickness and varying widths of 7" to 12" in half-inch increments sheath the north, east and south elevations.

The track hardware for the two sliding doors is identified as "Stanley X 12". The vertical boards of the doors measure 1" thick by varying widths. The north door measures 8'-6" wide by approximately 8'-0" tall. The south door measures 8'-0" wide by approximately 7'-0" tall.

The flat roof has a shallow slope from west to east. The circular-sawn rafters, measuring 2" by 4", are set 18" o.c. running east-west. The exposed rafters extend 10" beyond the exterior walls and their ends have a vertical cut. Additional support for the rafters is provided at mid-span by a pair of 2" by 6" one atop the other that span north-south between the middle row of posts. Supporting this pair of 2" by 6" is a 2" by 4" that extends east-west between the posts that separate the middle bay from the south two bays. The roof deck is comprised of plank boards of both 1" and 5/4" thickness and varying widths. The roofing material is composition shingle.

Inside, a plank board wall separates the middle bay from the two north bays. The vertically arranged plank boards match those of the exterior siding.

The other interior dividing wall separates the middle bay from the two south bays. This wall is sheathed with plywood panels measuring 1/2" by 4'-0" by 8'-0".

The framing for walls and roof are typically exposed inside the shed except in the two south bays where the walls are covered with 1/2" plywood panels.

The two north bays have loose granite aggregate for flooring. The middle bay has a dirt floor. The two south bays have mounds of sawdust several feet deep extending from wall to wall.

The exterior wall surfaces and trim are painted red. The interior surfaces of the bays are without paint or other finish coating.



Figure 304. Shavings Shed: deflection of walls and roof due to undersized framing.

The shed has a fire suppression system. It does not have lighting.

Commentary on Condition

The framing is undersized for the load and spans as evidenced by the deflection of framing in multiple locations.

Shingles are not a desirable roofing material for low-pitched roofs such as the one on this structure. The extensive amount of replacement roof deck boards and framing can likely be attributed to the use of roof shingles without supplementary protection.

Carpenter bees are causing damage to wood framing elements.

Cow Shed

Description

This small one-story building consists of two sections, constructed at different times with different construction characteristics.

The earliest section is to the west, a gable-roof structure built by the Smyths as a turkey house. The Sandburgs used it as a horse stall. It now again is a fowl house for chickens. A rectangle in plan, the one-room, wood stud-frame structure measures just 10'-2" along its east-west dimension and 12'-1" along its north-south dimension. Unlike other buildings in the complex except the Barn Garage, it is built on a concrete slab chosen to aid in sanitation. The exterior is clad with weatherboard, much of which was installed in recent decades. The flush board siding of the south elevation was fully replaced with weatherboards in 1972, as was most if not all of the front elevation and elsewhere. The tapered weatherboard of the building measures $\frac{1}{8}$ " at the top to $\frac{1}{2}$ " at the bottom with weather exposure measuring from 5½" to 6½". Plank corner boards measure $\frac{3}{4}$ " by 3".

The building is oriented to the west facing the barnyard and Horse Barn. The only doorway is on this elevation. The board-and-batten door measures 2'-7" by 6'-6". Its exterior surface is comprised of tongue-and-groove boards measuring $\frac{3}{4}$ " by 5", 5½" and 6" arranged horizontally. The frame is on the interior surface and consists of boards measuring 1½" by 3¾"; the configuration is not clear because the frame is completely covered with a sheet of $\frac{1}{2}$ " plywood. The exterior door casing consists of plank boards

measuring $\frac{3}{4}$ " by 3" and is mitered at the corners. The interior casing consists of plank boards that measure $\frac{3}{4}$ " by 3½" and are lintel cut. The door has a 3" wide by 4" tall rim lock with two 2¼"-diameter metal knobs, two three-knuckle 5" butt with 8" barn hinges, one modern 8" hasp with staple, and one 1" by 2½" by 6½" carved wooden swivel door latch.

The north elevation, facing the Shavings Shed across a grassy field, is without fenestration. The back wall or east elevation has a single opening for ventilation that measures 1'-5" tall by 2'-6". The opening is covered on the exterior with 1" hardware cloth; on the interior it is covered with a sheet of $\frac{1}{2}$ " plywood hung hopper style.

The south elevation provides access for the fowl through a small top-hinged hatch to their fenced yard. The hatch measures 1'-4" wide by 3'-0" tall. It is made of a sheet of $\frac{1}{2}$ " plywood on a 1½" by 3¾" frame. The hatch is hung awning style with two 2½" five-knuckle butt hinges. There are two 3" barrel bolts.

Centered in the south elevation is a group of three windows separated by mullions. Each opening measures 1'-8" by 4'-6" and is screened on the interior. The two outer windows have tall two-light side-hinged sash that swing to the outside. Each sash has two 2" five-knuckle butt hinges and a turn latch that measures 1½" wide by 2" tall. The center window opening has no sash.

The low gable roof over this section is framed with rafters that measure 1¾" by 3¾" and are set 24" o.c. Rafter tails extend 6" beyond the exterior walls and have a vertical cut. The roofing material



Figure 305. Cow Shed: northwest oblique.



Figure 306. Cow Shed: southwest oblique.



Figure 307. Cow Shed: interior of north section looking southeast.



Figure 308. Cow Shed: southeast oblique of east section.

is composition shingle on a $\frac{3}{4}$ " plywood deck. There is a half-round 4"-wide galvanized gutter along the west elevation; a 3" downspout at the north end extends to a drain below grade.

On the interior of the west section, the floor is covered with sawdust. The walls and undersides of the roof rafters are covered with unpainted sheets of $\frac{1}{2}$ " plywood. Exposed ceiling joists, measuring $1\frac{1}{2}$ " by $3\frac{3}{4}$ ", extend east-west. The height from top of floor to underside of ceiling joists measures $7'-2\frac{1}{2}"$. There is a wall-hung galvanized ten-compartment roost on the north wall.

Electrical power enters the building below grade at the north end of the west elevation. Modern rigid conduit carries power to a single ceramic lamp holder and a smoke detector near the center of the ceiling joists. An abandoned early fuse box is on the exterior surface of the north wall. Piping for the fire suppression system is present.

At an undetermined time, the larger enclosure was added, a shed-roofed extension off the east wall of the original turkey house. This addition, made of box construction and measuring 10'-0" by 16'-1", is comprised of split posts 6"-8" in diameter, embedded in the ground to form the three corners; a fourth post is at mid-section along the new long east wall. Between these vertical posts extend three horizontal rails measuring $1\frac{3}{4}$ " by $3\frac{3}{4}$ ", one a top rail, one a bottom rail and the other at mid-height. The vertical plank boards that are nailed to the outer faces of these rails measure 1" by $5\frac{1}{2}"$, $7\frac{1}{2}"$, 8", $9\frac{1}{2}"$, 12" and 14". The ground which serves as the floor inside the enclosure slopes west to east. Boards along the north elevation are in contact with the ground; along the south elevation, granite blocks are dry stacked below the wall boards.

Two board-and-batten doors are located on the center of the east wall. Each door measures 3'-0" by 5'-4". The vertical boards measure $\frac{7}{8}"$ by $5\frac{7}{8}"$, $7\frac{3}{4}"$, $6\frac{1}{4}"$ and $7\frac{1}{4}"$. The battens are of various dimensions. The top and bottom battens of the south door measure 1" by $3\frac{3}{4}"$ and the middle batten measures $1\frac{3}{8}"$ by $3\frac{3}{4}"$. The top diagonal measures 1 by $3\frac{3}{4}"$ while the bottom one measures $\frac{3}{4}"$ by $3\frac{3}{4}"$. The north door has battens that measure $1\frac{1}{4}"$ by $3\frac{1}{2}"$ and diagonals that measure 1" by $3\frac{3}{4}"$.

This addition has a shed roof with a very shallow slope. The rafters measure 2" by 4" and are set 22" o.c. The rafters extend 6" beyond the face of the east wall and have a vertical cut. The roof deck boards are comprised of plank boards that measure 1" by $5\frac{1}{2}"$, 7", 10" and 12". There are a number of recent replacement deck boards. The roofing material is a composition shingle matching that on the west building section. A 5" half-round galvanized gutter is along the east wall with a 3" round downspout that empties at the north end into a drain below grade.



Figure 309. Cow Shed: interior of east section looking northeast.

Commentary on Condition

Given the low slope of the east shed addition's shingle roof, it is not surprising that there has been significant replacement of deck boards. Shingle roofing is not intended for low-sloped roof surfaces. It could not be determined whether the current roof includes a supplementary roofing material beneath the shingles.

There is much warping and splitting of the newer replacement weatherboards. The quality of the boards is poor.

Carpenter bees continue to damage roof rafters and trim.

Buck Kid Quarters

Description

While the Goat Barn is aligned east-west to form the north perimeter of the fenced barn yard, the Buck Kid Quarters is in the middle of a group of buildings that, with fences stretched between them, create the east perimeter of the barn yard. The slightly northwest-to-southeast alignment begins with the Silo at the north end behind the Horse Barn and next to the Goat Barn. Next is the Horse Barn just south. About 45 feet further south is the Buck Kid Quarters, with a wire fence running south from the Horse Barn, and a board fence running south from the Buck Kid Quarters to the Barn Garage.

Parts of the building may very well predate the Smyth occupancy. Apparently, the building had a previous granary function. Early-twentieth-century photographs show the three visible sides (west, north, and east) sheathed with horizontal slats alternating with gaps, similar to the exterior ventilating walls of the Corn Crib. The fourth side of this building, the south elevation, is not visible in the photographs. However, the slat siding remains on the south and east walls of the north compartment of the building today. In the photographs, a post supports the front southwest corner, which is open, apparently for vehicle cover. Sandburg photos show sheathing or replacement of the ventilating slats with weatherboards, and plank boards as today, and enclosure of the open southwest corner.

The one-and-one-half story building is rectangular in plan, its footprint measuring 16'-4" wide by 20'-1" long, with its long dimension aligned east-west.



Figure 310. Buck Kid Quarters: northwest oblique.

At first-floor level are two long compartments side-by-side. The north compartment is now divided by a partition wall running north-south slightly west of mid-section. There is no connecting doorway between the north and the south compartments. At upper level is one large room, accessed by a fixed ladder at the west (front) elevation and an



Figure 311. Buck Kid Quarters: west (front) elevation.



Figure 312. Buck Kid Quarters: south elevation.



Figure 313. Buck Kid Quarters: southeast oblique.



Figure 314. Buck Kid Quarters: north elevation.

exterior doorway at upper level. Across the full width of the rear or east elevation is an added shed roof structure measuring 7'-5" deep resting on three 4" by 4" posts.

Squared-up blocks of granite are mortared to form a low foundation wall along the north and east exterior walls. Along the south and west walls, wood sills appear to be at grade. The floor joists and wall sills for the north compartment are inaccessible.

The framing for the north compartment has the larger timbers at the corners; these roughly squared posts measure 6" to 7" by 6" to 7" while the posts at mid-section are slightly smaller at about 5" to 6" square. Other posts in the wall measure 2" by 4" to 4" by 4." The diagonal wall bracing at the corners measure 4" by 4."

The joists supporting the upper level are continuous from the north wall of the north compartment to the south wall of the south compartment. These joists measure 2½" to 2¾" by 7½" to 8" set 30" o.c. The joists are sash sawn.

The weatherboard siding on the north and west exterior elevations is tapered and measures 5½" deep with a 4½" weather exposure. The vertical plank boards on the south and east elevation measure 1" by various widths; the exception is the upper portion of the north compartment's east wall which is sheathed with ⅞" by 7" German siding. The siding on the north wall of the east shed roof addition is ¾" by 4" assembled in a vertical pattern with ¼" space between boards.



Figure 315. Buck Kid Quarters: original slat siding between north and south compartments.



Figure 316. Buck Kid Quarters: southeast oblique of north compartment. Note slat siding remains on part of east and south walls.



Figure 317. Buck Kid Quarters: south compartment looking east.

Two drop-back windows are on the north wall. Each opening measures 3'-0" wide by 1'-4" tall; both sash are in place. A window on the south wall measures 2'-8" wide by 2'-5" tall; the sash is missing.



Figure 318. Buck Kid Quarters: southwest oblique of south compartment.



Figure 319. Buck Kid Quarters: northwest oblique of south compartment.

Four pedestrian doorways are on the first level. Two are on the west elevation, one on the south, and one on the east. All have board-and-batten doors. The north doorway of the west elevation connects to the north compartment. The door measures 2'-11" wide by 5'-8" tall. The boards measure $\frac{3}{4}$ " thick by 5" wide and the battens $\frac{3}{4}$ " thick by 5½" wide.

The south doorway of the west elevation connects to the south compartment. It has an exterior door and an interior gate. The door measures 3'-9" wide by 5'-8" tall. The boards are tongue-and-groove V-edge that measure $\frac{3}{4}$ " thick by 5¼" wide. The battens are of varying widths by $\frac{3}{4}$ " thickness. There are three barn hinges; two measure 16" and one measures 12". The rim lock measures 3¼" wide by 3¼" tall with two steel door knobs. Outside the doorway, the landing is a block of granite that measures 1'-6" wide by 6'-0" long.



Figure 320. Buck Kid Quarters: front entrance gate.



Figure 321. Buck Kid Quarters: typical barn hinge.

The interior gate measures 5'-9" tall with vertical slats of plank boards of $\frac{3}{4}$ " thickness by various widths. The battens measure 1" thick by various widths. There are two 10" barn hinges.

The doorway on the south elevation measures 2'-3" wide by 5'-4" tall. The vertical boards measure $\frac{7}{8}$ " by 7¼" to 7½" wide and 1" by 3¼" wide. The battens are $\frac{3}{4}$ " by various widths. There are two 15" barn hinges, a 6" wire hook, and a rim lock measuring 3¼" wide by 3¼" tall with one black mineral door knob and a keep. There is a carved

wooden swivel latch. Outside the doorway, there is a 4'-0" wide by 7'-2" long landing of mortared granite.

The doorway on the east elevation measures 1'-9" wide by 5'-8" tall. The boards measure $\frac{3}{4}$ " by $5\frac{1}{4}$ " wide. The battens are $\frac{3}{4}$ " thickness by various widths. There are two hinges with $3\frac{1}{2}$ " butt leaf and 6" barn leaf. There is a carved wooden swivel latch.

There is also a short doorway on the east elevation of the north compartment for goats. It measures 1'-8" wide by 2'-10" tall. The board-and-batten door has boards that measure $\frac{3}{4}$ " by $5\frac{1}{4}$ " tongue-and-groove. The two battens measure $\frac{3}{4}$ " thick by $2\frac{1}{4}$ " wide. There are two hinges of a $3\frac{1}{2}$ " butt leaf with a 4" barn leaf. There is a 3" tall by 4" wide rim lock and a $2\frac{1}{2}$ " wire hook. A wooden ramp leads to grade.



Figure 322. Buck Kid Quarters: southwest oblique of loft.



Figure 323. Buck Kid Quarters: mortise-and-tenon joinery of rafters.

The roof is framed with nine circular-sawn rafters that measure $3\frac{1}{8}$ " by 4" set 30" o.c. They are joined at the ridge with mortise and tenon, are notched over the wall plate, and end with a straight vertical cut to the ends of the joists. The middle five pairs of rafters have half-lapped collar beams that measure 2" by 4" by 4'-0" long and are 9'-2" above finished floor level. The deck boards are $\frac{3}{4}$ " by 12" with $\frac{1}{4}$ " gaps between deck boards. The deck boards were replaced in a full roof replacement when the current roof of 5-V galvanized metal panels was installed; one set of nail holes for wire nails holds the current roofing material.

There are two types of wood flooring at the first floor level of the north compartment. The change occurs at the board wall that divides the compartment into two rooms. On the west side of the wall, the flooring measures 1" by 6" plank boards. On the east side, the flooring measures $5\frac{1}{4}$ " by 6" and 8" wide boards. The wall framing is exposed on the four exterior walls with the back of the weatherboard exterior siding visible on the north, east and west walls; slat siding measuring 1" by 3" attached with cut nails. The lone crosswall is a board wall with the circular-sawn planks set horizontally; the boards measure $\frac{7}{8}$ " by $7\frac{3}{4}$ ", 8" and $9\frac{1}{4}$ " in widths. At the center of the wall is a doorway with board-and-batten door measuring 2'-4" wide by 5'-0" tall. The tongue-and-groove boards measure $\frac{3}{4}$ " by $5\frac{1}{4}$ " wide. The battens are $\frac{3}{4}$ " thick with varying widths. The hardware includes a $3\frac{1}{4}$ " wide by $3\frac{3}{4}$ " tall rim lock with steel knobs, and two hinges of a 4" butt leaf with 5" barn leaf. The underside of the upper level flooring and the exposed joists form the ceiling. The height from top of floor to underside of joists is 5'-8."

In the south compartment, the ground of the southwest corner, formerly open but covered, is now enclosed around the perimeter. Sandburg added the siding on the exterior walls and grain troughs on the interior along the north and south walls. The height from top of the ground to bottom of overhead joists is 6'-8."

At the upper level are two types of flooring. The change occurs at the rafter pair number 5, the mid-point east-west. To the east of that line the flooring is 1" thick by 10" or $10\frac{1}{2}$ " or 11" widths. To the west of that line, the flooring measures $5\frac{1}{4}$ " by $5\frac{1}{2}$ " or $10\frac{1}{4}$ " or $10\frac{1}{2}$ " widths.



Figure 324. Buck Kid Quarters: typical 3½" lamp holder.



Figure 325. Buck Kid Quarters: loose fasteners and extensive rust of roof.

Porcelain lamp holders, 4" in diameter, are the typical lighting fixture.

A 2½ pound ABC Type hand-held fire extinguisher is on the north wall of the south compartment.

Commentary on Condition

The replacement roofing system is a major concern. The 5-V panels have extensive rust. But more seriously, a large number of nails that hold the panels in place have worked their way up and out of a secure bond; the panels are susceptible to be blown out of position or even off the building in a strong wind.

Corn Crib

Description

This small distinctive structure sits near the middle of the Barnyard. Though built for a utilitarian purpose, the work is well crafted, the construction details are sophisticated, and the dimensions are precise. It apparently was constructed during the Smyth period to hold ears of dried corn for farm animals. The Sandburgs converted the building to a tool shed, apparently adding the crafted wood racks to the interior of the east and west walls. NPS continues this practice.

Unlike the other buildings in the Barn Complex, the Corn Crib sits well above grade. Four round bark-free but unmilled posts, each measuring between 9" and 10" in diameter, are set in the ground and support the four corners of the floor frame. This frame is rectangular and measures 5'-7" by 12'-6", the long dimension aligned north-south. The perimeter of this frame is composed of wood sills measuring 6" wide by 9" tall, the corner intersections half-lapped and nailed. The floor joists measuring 2" by 4" are set 28" o.c. and span east-west. The flooring is comprised of full-length plank boards measuring 5/4" thick with random widths ranging from 9½" to 13½". The flooring



Figure 326. Corn Crib: northwest oblique.



Figure 327. Corn Crib: southeast oblique.



Figure 328. Corn Crib: damaged and missing roof shingles.

runs north-south and is arranged with ½" gaps between each floor board. The vertical framing of the walls are a combination of 4" by 4" corner posts and 2" by 4" studs set 22" o.c., all extending from wall sills to wall plates of paired 2" by 4"s. The wall studs of the east and west wall are splayed, creating a wider frame at the level of the wall plates. At the east, south, and west walls, each corner post has 2" by 4" diagonal bracing.

The gable roof is framed with rafters measuring 2" by 4" set 28" o.c. The rafters are toenailed at the wall plates and at the intersection of paired rafters. The top of flooring to top of rafters measures 12'-0". All the early framing is circular-sawn lumber and attached with wire nails.

On all four elevations replacement skirt boards cover the floor framing. These boards measure 5/4" by 13½"; at the corners the joints are mitered. Also on all four elevations, the wall framing is sheathed along the exterior surfaces with ¼"



Figure 329. Corn Crib: south gable hatch.



Figure 330. Corn Crib: corner posts support perimeter sill beams with lapped joists.

galvanized hardware cloth. Atop this mesh are wood slats applied in horizontal bands, measuring $\frac{7}{8}$ " by $2\frac{1}{2}$ ", or $2\frac{3}{4}$ ", or 3". Spacing between the slats, for venting the corn, measures from $1\frac{1}{2}$ " to 2" in width. The early slats are circular-sawn lumber and applied with wire nails.

The floor level of the interior space is 2'-6" above grade. Six inches below this level a step measuring $5\frac{1}{4}$ " by 9" extends across the entire north elevation; it is supported by two brackets measuring 1" by $7\frac{1}{4}$ ". A Dutch door is centered on this north wall. Measuring 2'-11" by 5'-11", it is constructed in the fashion of the wall siding with hardware cloth and spacing between horizontal slats. A top rail and two stiles of 1" by 3" slats are applied to the interior face; the bottom portion of the door is 1'-6" tall and is missing a bottom rail. Vertical boards are added to the interior. There are three 16" barn hinges, a $6\frac{1}{2}$ " metal hasp for a lock, and a 6" long wooden turn latch.



Figure 331. Corn Crib: north elevation.



Figure 332. Corn Crib: oak roof and wall framing.



Figure 333. Corn Crib: southeast oblique.

In the upper south gable end is an original hatch opening measuring 18" tall by 23" wide. The jambs and lintel measuring 3" by 4" are framed atop the wall plate. The slat door is lined on the interior with ½" plywood.

The gable roof has cement-asbestos shingles. The size of a shingle is ¼" by 9" by 12".

The exterior wood surfaces of the structure are painted red. The interior is without finish.

Commentary on Condition

Sections of lattice are well worn and fragile from age.

There is significant damage to new boards from carpenter bees.

Several roofing shingles are broken or dropped out of position. Fortunately, additional shingles have been stockpiled and can be installed as replacements.



Figure 334. Corn Crib: rafters attached with wire nails at roof peak.

Barn Garage

Description

This building, now used to display farm equipment, was constructed to house the Smyth family automobiles. Far from the straightforward enclosure that would have sufficed for the utilitarian purpose of protecting vehicles from the weather, this building instead reflects the affluence and attention to detail of the Smyth family. It is a surprisingly handsome building, well-crafted and exhibiting sophisticated architectural flourishes.

The Barn Garage is located at the south end of the barnyard, adjacent to the main gate that connects yard to access road. The footprint of this building is a wide and shallow rectangle measuring 45' – 3" by 21' – 0". One-story in height, a shingled gable roof runs east-west.

Like the Cow Shed, this building is a conventional frame structure constructed atop a poured-in-place concrete slab. The slab on the north, east and west



Figure 335. Barn Garage: southeast oblique.



Figure 336. Barn Garage: northwest oblique.



Figure 337. Barn Garage: decoratively trimmed gable vent and shadow casting German siding.

elevations rests on a perimeter wall of ashlar blocks of granite set in mortar with a non-utilitarian and decorative raised-bead joint; on the south elevation the slab connects to a 3' – 0" wide concrete apron that extends the width of the building and connects with a short gravel-covered drive extending to the access road.

The walls of the building are constructed of wood studs set 16" o.c. The exterior face of the walls is sheathed with a variation of decorative German siding, also called "dropped siding."

The long south elevation is a full replacement and contains four large doorways for the vehicles. Each doorway, measuring 9' – 0" by 9' – 0", contains a pair of recent-vintage replacement doors. Each door has a 1" thick core, is sheathed on the interior face with ¼" plywood and on the exterior face with a ⅝" by 3 ⅛" tongue-and-groove beaded board set vertically. This beaded board is also used for exterior roof soffits and interior wall and ceiling finish material. The westernmost pair of doors has been fixed in the closed position becoming the exterior face of a cavity wall that matches the depth of the building's perimeter walls; the interior face of this cavity wall is likewise sheathed with the same beaded board in the same vertical pattern as on the exterior.



Figure 338. Barn Garage: rafters are enclosed with beaded-board soffit, deep fascia, decoratively cut rake boards, and trim molding.

The other three pairs of doors remain operable. The interior face of each operable door is sheathed with plywood. Each door has three 24" three-knuckle barn hinges.

Each door has a three-light sash except the west door of the second from westernmost doorway. Each door sash measures 1'-8" by 3'-2" and has clam shell-style exterior casing mitered at the corners. The door without sash contains a pedestrian door within the larger vehicle door. This pedestrian door measures 1 $\frac{7}{8}$ " by 2'-7" by 6'-7"; like the vehicle door it has beaded boards on the exterior and flush boards on the interior. It has three 4" butt hinges and recent vintage brass globe doorknobs. All four vehicle doorways are cased with plank boards that measure 5 $\frac{1}{4}$ " by 5 $\frac{1}{4}$ " with lintel cut.

The north, east and west exterior walls retain their original double-hung wood sash windows. Four windows are symmetrically arranged on the north elevation; two are symmetrically placed on the east and west elevations. Each window unit has a nine-light over nine-light sash combination that measures 2'-4" by 5'-6". The jamb casing is a plank board measuring 1" by 5 $\frac{3}{8}$ ". Above each window is a distinctively deep plank board architrave measuring 1" by 9" with decorative cap.

Ceiling joists run north-south extending over the wall plates along the full length of north and south walls, creating deep soffits. These ceiling joists measure 1 $\frac{5}{8}$ " by 7 $\frac{5}{8}$ " and are set 24" o.c. The two soffits are sheathed with the 5 $\frac{5}{8}$ " by 3 $\frac{1}{8}$ " tongue-and-groove beaded board running east-west. A



Figure 339. Barn Garage: typical decorative window surround of deep lintel and molded weather trim.



Figure 340. Barn Garage: stone foundation is pointed with decorative rope joint.

deep fascia board is used to create a shadow line on the soffit. At the gable ends, the rake board carefully aligns with the fascia board. Rake board and fascia are trimmed with a molded cap.

Pairs of rafters are set atop the ceiling joists. Each rafter measures 1 $\frac{5}{8}$ " by 7 $\frac{5}{8}$ ". The rafters are toenailed with wire nails to a ridge pole measuring 1" by 10". The plywood roof deck appears to be a recent replacement. Each pair of rafters has a V-brace with collar extending from the joist; the diagonal bracing boards and collar measure 1 $\frac{5}{8}$ " by 3 $\frac{5}{8}$ ".

The roofing material is composition shingle. A single half-round galvanized 5" gutter hangs on the south elevation. There is one 3" downspout on the east end of gutter. The downspout does not connect to the below-grade drain but instead dumps directly onto the ground.



Figure 341. Barn Garage: looking west.



Figure 342. Barn Garage: looking east.

The interior is one large room. The floor-to-ceiling height is 10'-10". The walls and ceiling are sheathed with the ubiquitous $\frac{5}{8}$ " by 3 $\frac{5}{8}$ " tongue-and-groove beaded board. The window casing and apron are comprised of plank boards measuring $\frac{3}{4}$ " by 4 $\frac{1}{4}$ " with lintel cut. The replacement casing for the vehicle doors are likewise comprised of plank boards measuring $\frac{3}{4}$ " by 4 $\frac{1}{4}$ " with lintel cut. The casing for the door sash is a clam shell measuring $\frac{3}{4}$ " by 2 $\frac{3}{8}$ ".

A ladder is mounted on the interior face of the east wall for access above the ceiling. The two rails, each measuring 1 $\frac{5}{8}$ " by 3 $\frac{5}{8}$ ", are screwed to the wall. The rungs, notched into the rails, are sections of tongue-and-groove boards (tongue removed) measuring $\frac{3}{4}$ " by 3 $\frac{1}{4}$ ".

The building has electrical power, now entering at the west end of the north wall. An abandoned fuse box is located on the interior face of the east wall at its south end.

Exterior lighting is provided by four ceramic lamp holders attached to the soffits at each of the vehicle doorways. On the interior, four ceramic lamp holders are attached to the ceiling in an east-west line, a lamp holder above each automobile bay.

The building has a fire suppression system. Drop-down heads are located in the ceiling. The sprinkler system riser is exposed on the east wall where it enters the building and extends above the ceiling. There are two ceiling-mounted smoke detectors. A hand-held ten-pound ABC Type fire extinguisher is mounted on the east wall. Two strobe light fire indicators are on the west wall, one on the interior, the other on the exterior.

All interior wood surfaces of the Barn Garage are painted. The concrete slab serves as flooring and is without applied finish. All exterior wood surfaces are painted white, giving the Barn Garage the additional distinction of being the only white building in the Barn Complex.

Commentary on Condition

The building appears to be regularly maintained and is in good condition, in general. However, there are a number of minor concerns.



Figure 343. Barn Garage: Paint failing between paint layers, indicative of poor surface preparation before repainting.

parcel of ground gets little sunlight and has little ventilation to promote evaporation. The ground remains moist, wetting the west wall of the Isolation Quarters.

The gutter on the south elevation is leaking at a seam; the splash is starting to damage the finish on the garage door below.

A number of roofing shingles are cupped and thus prone to be damaged by a strong wind.



Figure 344. Barn Garage: a number of composition shingles are cupped making them prone to wind damage.

The recently replaced exterior siding boards are not faring well. A number of the boards have split, especially around the nail holes.

Where there are repainted early boards, the paint is failing between paint layers in a number of locations.

Rainwater at the east end of the building is draining into the narrow northwest-sloping yard between the Barn Garage and the Isolation Quarters. This

Isolation Quarters

Description

Located in the far southeast corner of the barn compound, the Isolation Quarters is remote, in addition to being one of the smaller buildings of the group.

It sits just east of the Barn Garage, also facing south towards the service road. Its original use is not known, but it served as nighttime housing for the Smyths' sheep. Its sash-sawn oak mortise-and-tenon framing, unmilled long framing, thick plank weatherboards, and cut nail fasteners strongly suggest it dates to the nineteenth century.

The Sandburgs first used the building as a buck house. In later years they placed ill goats here, taking advantage of its somewhat remote location to isolate those animals. That physical separation named the building. It does not appear that Sandburg made many modifications.



Figure 345. Isolation Quarters: southeast oblique.



Figure 346. Isolation Quarters: northeast oblique.

This is a small building. The footprint is just slightly more than fourteen feet wide by about fifteen feet long. It is essentially one room at grade and one room above. The upper level is accessed by both an interior fixed ladder and from the outside through the south gable doorway.

Sections of dry-stacked granite stones are along the west portion of the south wall and south portion of the west wall. These may be remnants of an early foundation. Elsewhere, are mortared sections of stonework, probably recent repairs. At most sections of the perimeter walls, the 6" wide and 4" tall sill appears to be at or close to grade with stud and post framing resting atop the sill. The west portion of the south sill is missing and wall posts rest in the dirt. The south portion of the east wall sill is a replacement.

Most of the exteriors of the walls, especially on the south and east elevations, are clad with a ½" tapered weatherboard that is 5½" long with a 4½" weather exposure. However, on the north wall are older plank boards attached with cut nails. In the north gable, these are ⅞" by 6" planks. Lower on the wall, plank boards measure 1" by 12" and 8½" and 9½". High on the west wall are early plank boards that measure ¾" thick by 10" and 12" wide.

There is one window on the north elevation. It has a two-light sash measuring 2'-4½" wide by 2'-6" tall mounted casement-style on the east jamb with two 3" ball-pin hinges; at this opening is a rack for a lay-back window sash as well.

There are three doorways. Two are at grade level, one on the main or south elevation, the second on the east elevation. A third doorway is at the upper



Figure 347. Isolation Quarters: north elevation. Note change in siding sizes.

level in the south gable. The front doorway holds a modern board-and-batten door that measures 3'-0" wide by 5'-5" tall. The vertical boards measure $\frac{3}{4}$ " by 5 $\frac{1}{2}$ " wide. The frame, made of plank boards measuring 1 $\frac{1}{2}$ " by 3 $\frac{1}{2}$ ", is around the perimeter, picture frame style, with a diagonal. There are two 12" barn hinges, a 4 $\frac{1}{2}$ " hasp, and a carved wooden swivel latch.

The doorway on the east elevation has a slat gate that measures 2'-6" wide by 5'-0" tall. The slats measure $\frac{3}{4}$ " by 3 $\frac{1}{2}$ " wide with a 3" gap between slats. The hardware includes a 10" barn hinge, an 8" barn hinge, and a 2 $\frac{1}{2}$ " wire hook.

The upper-level doorway has a recently-installed replacement board-and-batten door. The vertical boards measure $\frac{7}{8}$ " by 7 $\frac{1}{4}$ " wide. The two battens measure 1" by 6" wide. The hardware includes a 4" wide by 3" tall rim lock with two steel door knobs, and two 8" barn hinges.



Figure 348. Isolation Quarters: interior looking southeast.



Figure 349. Isolation Quarters: unmillied attic floor joists.



Figure 350. Isolation Quarters: roof framed with mortise-and-tenon joinery, an early form of wood joinery.

The steeply pitched roof is frame with pairs of 3" by 4" rafters at 24" o.c. that are joined with mortise and tenon. The roof deck boards measure 1" thick by 8" and 10" and 12" widths. The roofing material is red composition shingles. A half-round gutter is on the east side of the roof; the 3" diameter round downspout connects to a subterranean drain at the southeast corner of the building.

Inside, at grade level, the ground serves as the floor. The wall framing is visible along the south and east walls; the backside of the exterior weatherboard siding is likewise visible. The north and west walls are covered with $\frac{1}{4}$ " thick sheets of plywood. In the northeast corner of the room is an unpainted plywood enclosure for the fire suppression system; in plan, the enclosure measures just over four feet wide by slightly longer than five feet. There also is a section of a board wall that remains from an earlier subdivision of the room; the boards are arranged on the horizontal and span between studs.

Unmilled logs about 6" in diameter are the overhead joists that support the attic level flooring. The joists and flooring constitute the ceiling for this room. From top of ground to underside of

joists, the height is 5'-5" near the south wall and 6'-6" near the north wall. Just inside the south entrance door, to the right, is a wood ladder to the attic. Nearby is an inoperable 3½" diameter porcelain lamp holder, an electrical panel box, and a handheld five-pound ABC Type fire extinguisher. A smoke detector is attached to a joist near the center of the room. A pipe for the suppression system hangs from the joists.

The attic is an open room. The flooring is comprised of plank boards of varying widths. The wall framing and back side of exterior siding are exposed on the north and south gable walls. The roof rafters and underside of roof deck boards extend from the east and west perimeter to the peak of the roof.

Commentary on Condition

The building appears to be in generally sound condition. However, there are some matters of concern.

There are a number of split weatherboards, especially on the south (front) elevation.

As elsewhere, the paint on the exterior surfaces appears to be peeling at the substrate level.

Carpenter bees are causing damage to exterior elements.

The overflow splash from a sagging gutter on the east elevation is potentially a threat to the door and siding beneath it. In addition, rainwater from the Barn Garage is wetting the west wall of the Isolation Quarters, and wetting the earthen floor well into this barn's interior. As a result, there is continuing damage to the Isolation Quarters wood members in contact with these wet conditions at grade and extending above.

II.A Ultimate Treatment & Use

Soon after the death of Carl Sandburg in 1967, his widow deeded the estate to the federal government. Congress moved quickly to establish a national park that would preserve the last place the beloved writer knew as home. President Lyndon B. Johnson signed the legislation into law in 1968 creating the Carl Sandburg Home National Historic Site (Public Law 90-592).

The National Park Service had extensive overdue repairs to complete before the park could open. Funding was slow, delaying the opening to 1974. The buildings of the Barn Complex were photographed before repairs commenced, although research and investigation prior to repair was not always as extensive as desired. Since the park's opening, several buildings in the House Complex have been studied more intensely; this report addresses the buildings of the Barn Complex.

The primary purpose of this Historic Structure Report is to document the historic evolution of the ten buildings that comprise the Barn Complex. A broad understanding of the histories of the buildings is needed in order to minimize the potential impact of repairs and improvements on the historic fabric of these buildings.

The research for this HSR confirms that eight of the ten buildings were present when the Sandburgs purchased the property in 1945. Further, not all of the eight were built by Smyth, nor were they all built in the first quarter of the twentieth century, as is sometimes reported. This HSR concludes that two of the buildings, the Isolation Barn and the Buck Kid Quarters, predate Smyth and may date to Memminger. A nearby residence, the Buck House, which is somewhat removed from the Barn Complex but had a function in the goat operation, is being investigated in a separate project. Research there indicates that it predates Smyth and probably dates to the Memminger period.

The park's General Management Plan (GMP) of 2003 is true to the mandate that created the park. The GMP states in part:

"The purpose of the Carl Sandburg Home National Historic Site is:

1. To carry out the legacy of Carl Sandburg's works and life for the benefit of future generations through preservation, interpretation, education and inspiration.
2. To preserve Carl Sandburg's last home, associated structures and landscape, original furnishings, personal belongings, and library."

NPS has labored to be true to the character of the buildings as known by Sandburg. Though largely successful, there are some exceptions. Repairs were not always easy to do, given the Sandburg tendency to make repairs that were out of character with the buildings, using multiple and seemingly random choices of materials. Most of the NPS work has been maintenance, and some of the work has been extensive. Unfortunately, the materials have not always been especially good or the work especially skilled. There have also been improvements, such as the installation of sprinkler systems and encapsulation of lead-based paint, that have been less than completely successful.

There are always maintenance needs that could be addressed, but in general, the buildings are in sound condition with most of their historic fabric intact. It is important to remember that all building features and materials that were present in 1968 should be considered to be each building's historic fabric.

Today, the Barn Complex is the most popular sector in the park with approximately 150,000 visitors per year. And these barn buildings are reportedly among the most difficult to maintain.

The Recommended Ultimate Treatment is Preservation of the buildings as known by Carl Sandburg, but in states of good repair.

This treatment is consistent with the legislation which created the park, the park's General Management Plan, and the actions of the park's management to date.

Other Recommendations

The GMP recommends continued interpretive use of the barn area. It is difficult to imagine other uses when the Barn Complex is such a popular attraction with both local and non-local visitors. However, recognizing this popularity, perhaps expansion of the interpretation of the goat operation is warranted. Other portions of the barn buildings might be made accessible, at least visually, to enhance visitor understanding. Examples of rooms that might be made physically and/or visually accessible in the Goat Barn are Room 101-Side Stalls Room and the adjacent Room 108 - Baby Goat Feeding Room. Access to this area would allow visitors to view aspects of the goat-raising business not currently visible. The cement floor with cast-in-place feeding bowl holders is an interesting feature of Room 108. If allowed into Room 101, visitors could experience that space for young goats, and an open door and closed gate on the dividing wall would allow viewing of the unusual floor feature of Room 108 for feeding baby goats.

Expanding visitation to buildings outside the Barn Complex that were part of the rearing operation but are not currently accessible might also be considered.

And, in light of the recent research, consideration should be given to presenting to visitors the long history of the site as a barn complex. While today the barns accurately reflect the complex as fashioned by Sandburg, the earlier structures have a rich history to tell as well. In fact the earlier buildings played a prominent role in bringing the Sandburgs to Connemara.

There are abundant opportunities to expand the public's understanding of that rich and varied history. One would be to point out to visitors the surviving slat siding of the Buck Kid Quarters, now only visible on interior walls, a surviving element from its previous use as a Corn Barn under management of a different owner.

High priority should be given to collecting additional oral histories about the buildings of the Barn Complex. These oral histories should be collected quickly before the opportunity to enrich the knowledge base with firsthand accounts is lost.

To better manage the historic buildings, it is highly recommended that digital record drawings be made of exterior elevations, roof plan, and foundation plan to supplement the floor plans prepared for this HSR.

It would be prudent to comprehensively record the historic paints and finishes of all the buildings from the Sandburg era, inside and out. The longer the delay, the more difficult will be the task of accurately recording the data.

The dendrochronologist's tree-ring samples of the barns are stored and accessible for retesting. When a tree-ring database is compiled for the Flat Rock area by the scientific community, the samples should be retested.

And finally, for each building, maintaining a sound exterior envelope is of highest priority. The most serious threat identified was consistently faulty roofing, and/or a compromised capacity to shed water, and/or an ineffective rainwater collection/dispersal system. Roof leaks allow moisture to gain access to the vulnerable interior. Excessive weathering of the protective exterior paint coating, cracks and open seams in weatherboards, window sash, doors, and trim, leave the wood architectural elements susceptible to moisture in all its forms. At grade, the lack of gutters creates splash onto low wood building elements. Pooling of rainwater due to improper site drainage causes the ground to stay wet and wood elements to deteriorate more rapidly than normal.

II.B Requirements for Treatment

Carl Sandburg Home National Historic Site operates under its General Management Plan of 2003. The Plan prescribes that the buildings are to be preserved as they appeared during the time that Carl Sandburg lived there.

The property was listed in the National Register of Historic Places in 1976. The buildings of the Barn Complex are individually identified as being architecturally significant.

The National Park Service Cultural Resources Management Guideline (DO – 28) requires planning for the protection of cultural resources on park property.

In addition, Section 106 of the National Historic Preservation Act (NHPA) 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 to be guided by *The Secretary of Interior's Standards for Historic Preservation Projects*, the Americans with Disability Act, and the International Building Code. Threats to public life, safety, and welfare are to be addressed; however, because this is an historic building, alternatives to full legislative and code compliance are recommended where compliance would needlessly compromise the integrity of the historic building.

Bibliography

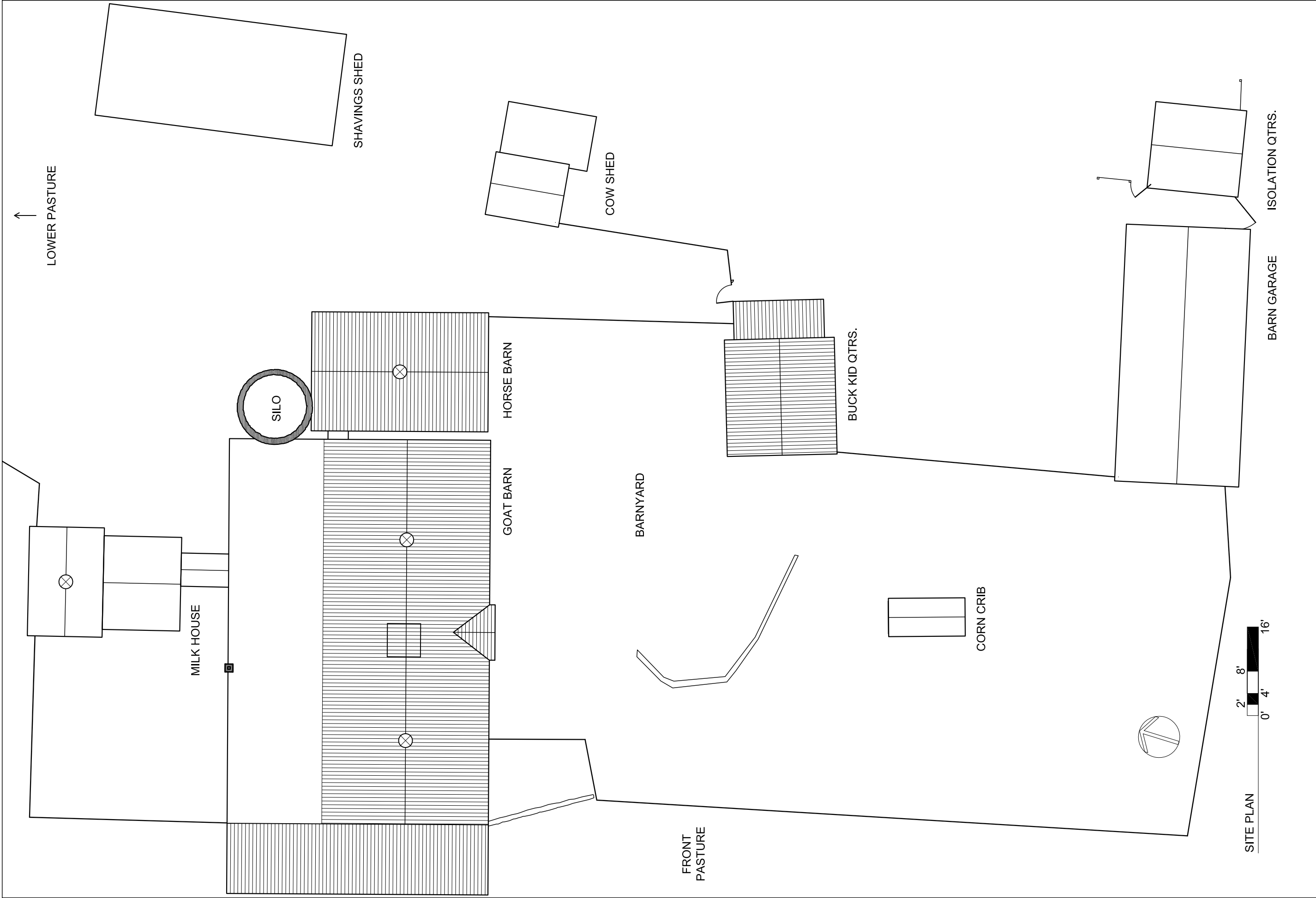
- Bailey, Louise Howe. *From "Rock Hill" to "Connemara": The Story Before Carl Sandburg*. National Park Service, 1980.
- Bridenbaugh, Carl. "Charlestonians at Newport, 1767-1775," *The South Carolina Historical and Genealogical Magazine*, vol. XLI, no. 2, April 1940.
- Buncombe County and Henderson County Deeds.
- C.G. Memminger Papers (#502) 1803-1915, Southern Historical Collection, University of North Carolina at Chapel Hill.
- Capers, Henry Dickson. *The Life and Times of C.G. Memminger*. Richmond, Virginia: the Everett Waddey Company, 1893.
- Carroll, B.R. *Historical Collections of South Carolina*. New York: Harper & Brothers, 1836.
- Carroll, Maureen A., Lucy Lawliss, and Steven H. Moffson. *Additional Documentation and Amendment, National Register nomination, Carl Sandburg Home National Historic Site*, 9 March 1995.
- Derrick, Samuel Melancthon. *Centennial History of South Carolina Railroad*. Columbia: State Company. 1930.
- De Braham, John G.W. *Report of the General Survey in the Southern District of North America*, ed. by Louis De Vorse, Jr. Columbia: University of South Carolina Press, 1971 reprint.
- "Forgotten Fields: Inland Rice Plantations in the South Carolina Lowcountry," Lowcountry Digital History Initiative, College of Charleston.
- Hart, Susan. *Carl Sandburg Home National Historic Site Cultural Landscape Report*. Atlanta, GA: NPS-SERO, Division of Cultural Resources, 1993.
- Jacobs, William Plumer. *The Pioneer*. Clinton, SC: Jacobs & Company Press, 1935.
- Jones, Tommy. *Connemara Main House Historic Structure Report, Carl Sandburg Home*. Atlanta: National Park Service, 2005.
- Jones, Tommy. *The Swedish House Historic Structure Report, Carl Sandburg Home*. Atlanta: National Park Service, 2005.
- Kung, Limin, Jr., "Practical Management Aspects of Corn Silage for Dairy Cattle," http://ag.udel.edu/anfs/faculty/kung/articles/practical_management_aspects_of_.htm; accessed 21 June 2012.
- McCandless, Peter. *Slavery, Disease, and Suffering in the Southern Lowcountry*. Cambridge University Press, 2011.

- McKay, Mary Smyth. "Story Book Summers at Connemara Farm," *The State*, August 1973, p. 21.
- Manigault plantation papers, Records of Ante-Bellum Southern Plantations, Southern Historical Collection, University of North Carolina.
- Memminger, Edward Read. *An Historical Sketch of Flat Rock*, written 1922, privately published by Marjorie Memminger Norment. Asheville: Stephens Press, 1954.
- Miller's Hendersonville, N.C. City Directory*, 1945/1946.
- National Park Service. *CARL Visitor Study*, Spring 2008, Park Studies Unit, Visitor Services Project, Report 201, December 2008.
- Niven, Penelope. "Carl Sandburg's Life," American National Biography Online, <http://www.anb.org/articles/16/16-01435.html>.
- Niven, Penelope. *Carl Sandburg: A Biography*. C. Scribner's Sons, 1991.
- Oppermann, Joseph K. *The Chicken House/Wash House Historic Structure Report, Carl Sandburg Home*. National Park Service, 2007.
- Patton, Sadie Smathers. *Flat Rock: Little Charleston of the Mountains*. Hickory, NC: Sadie Smathers Patton, 1961.
- Pence, Heather Russo. *Carl Sandburg Home National Historic Site: Archeological Overview and Assessment*. Tallahassee, FL: Southeast Archeological Center/National Park Service, 1998.
- Philips, Laura A.W. *National Register nomination, Win-Mock Farm Dairy*, Davie County, NC.
- Shaffer, E.T.H. *Carolina Gardens*. New York: The Devin-Adair Company, 1937, 3rd ed. 1963.
- Steichen, Paula. "Hyacinths and Biscuits; The Life and Works of Carl Sandburg," Handbook 117: Carl Sandburg Home. Washington, DC: NPS, Division of Publications, 1982.
- Steichen, Paula. *My Connemara*. New York: Harcourt Brace & World, Inc., 1969.
- Stodola, Barbara. "The Harbert Years," *Lake Magazine*, February-March 2007. <http://www.lakemagazine.com/magazine/article.asp?articleid=LID-1221-6U98C-20064836>.
- Trinkley, Michael, "South Carolina Land Phosphates in the Late Nineteenth and Early Twentieth Centuries: Toward An Archaeological Context," in Michael Trinkley, Nicole Southerland, and Sarah Fick, *Cultural Resources Survey of the Campbell Tract*, 2006.
- Trotter, William R. *Bushwhackers, the Civil War in North Carolina, vol. II, The Mountains*. Winston-Salem: John F. Blair, publisher, 1988.
- Wallace, David H. *Historic Furnishings Report, Main House and Swedish House at Carl Sandburg Home National Historic Site, Flat Rock, North Carolina*. Frederick, MD: NP, 1984.
- Wilson, James Grant, and John Fiske, eds. "Memminger, Charles Gustavus," in *Appletons' Cyclopædia of American Biography*. New York: D. Appleton, 1900.
- Numerous sources from Carl Sandburg Home archives, interviews, newspaper articles, websites.

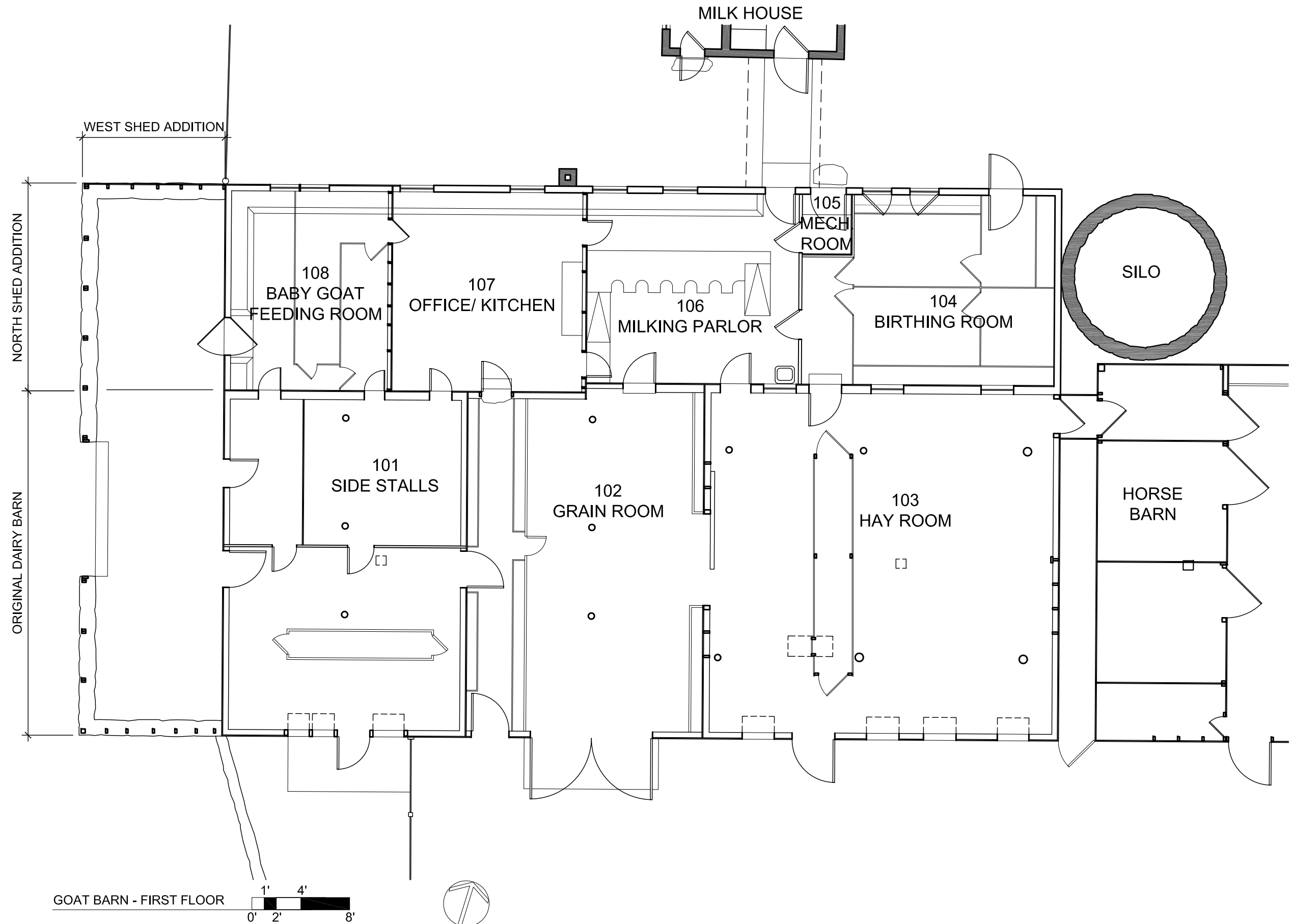
Appendix A:

Documentation Drawings

- Sheet A-1: Site Plan
- Sheet A-2: As-Found Goat Barn - First Floor
- Sheet A-3: As-Found Goat Barn - Second Floor
- Sheet A-4: As-Found Milk House - First Floor
- Sheet A-5: As-Found Milk House - Second Floor
- Sheet A-6: As-Found Silo & Horse Barn - First Floor
- Sheet A-7: As-Found Silo & Horse Barn - Second Floor
- Sheet A-8: As-Found Shavings Shed
- Sheet A-9: As-Found Corn Crib & Cow Shed
- Sheet A-10: As-Found Buck Kid Quarters - First & Second Floors
- Sheet A-11: As-Found Barn Garage
- Sheet A-12: As-Found Isolation Quarters - First & Second Floors
- Sheet A-13: As-Found Details



CARL SANDBURG BARN COMPLEX FLAT ROCK, NORTH CAROLINA				JOSEPH K. OPPERMANN - ARCHITECT, P.A. WINSTON-SALEM, NORTH CAROLINA			
DATE:		RECORDED BY:		SCALE:		APPENDIX A:	
08.2011		JKO RLM		1/16" = 1'0"		AS FOUND SHEET	
						1	



JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

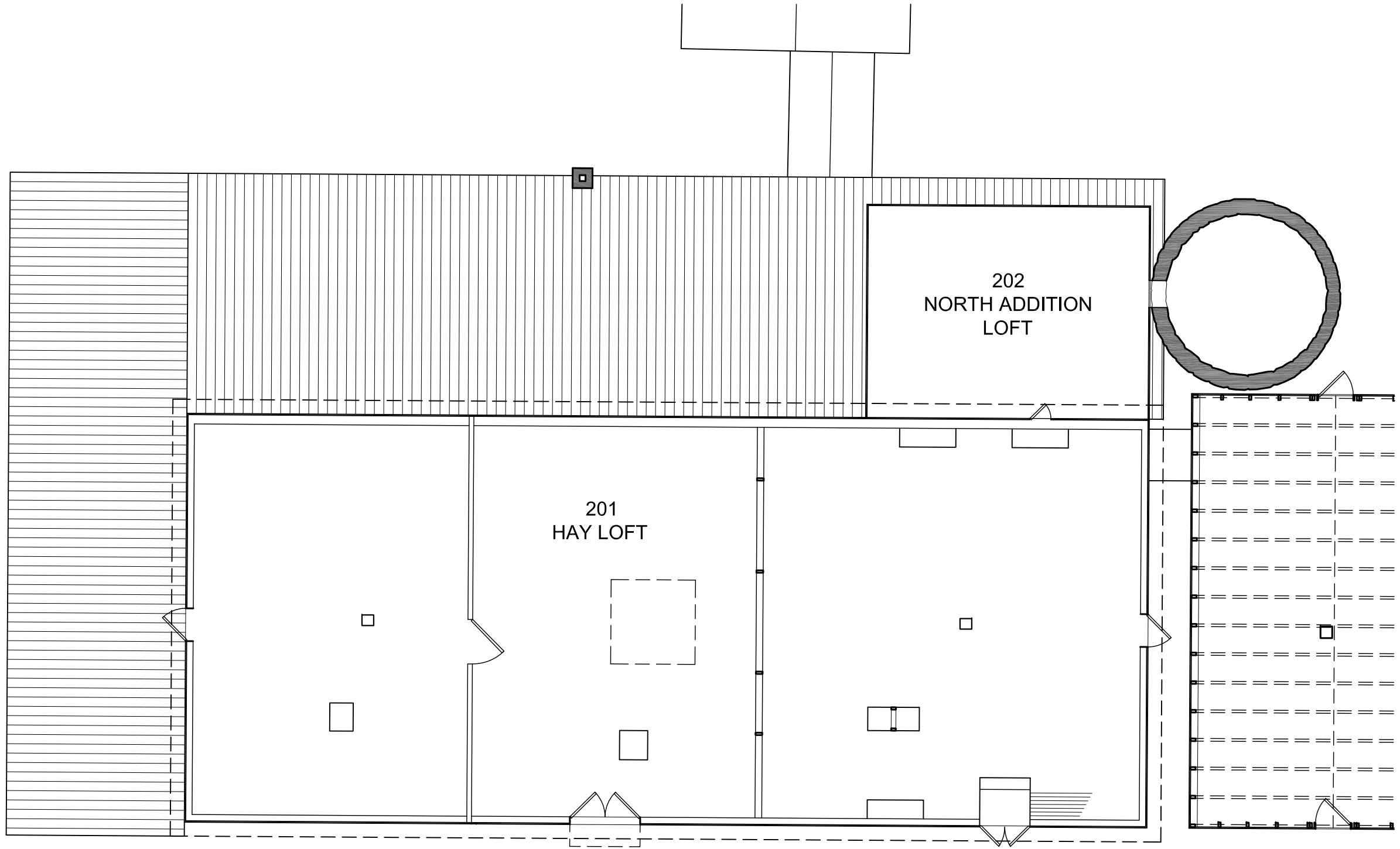
CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

DATE:
08.2011

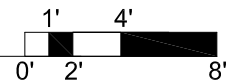
RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{8}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET



GOAT BARN - SECOND FLOOR



JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

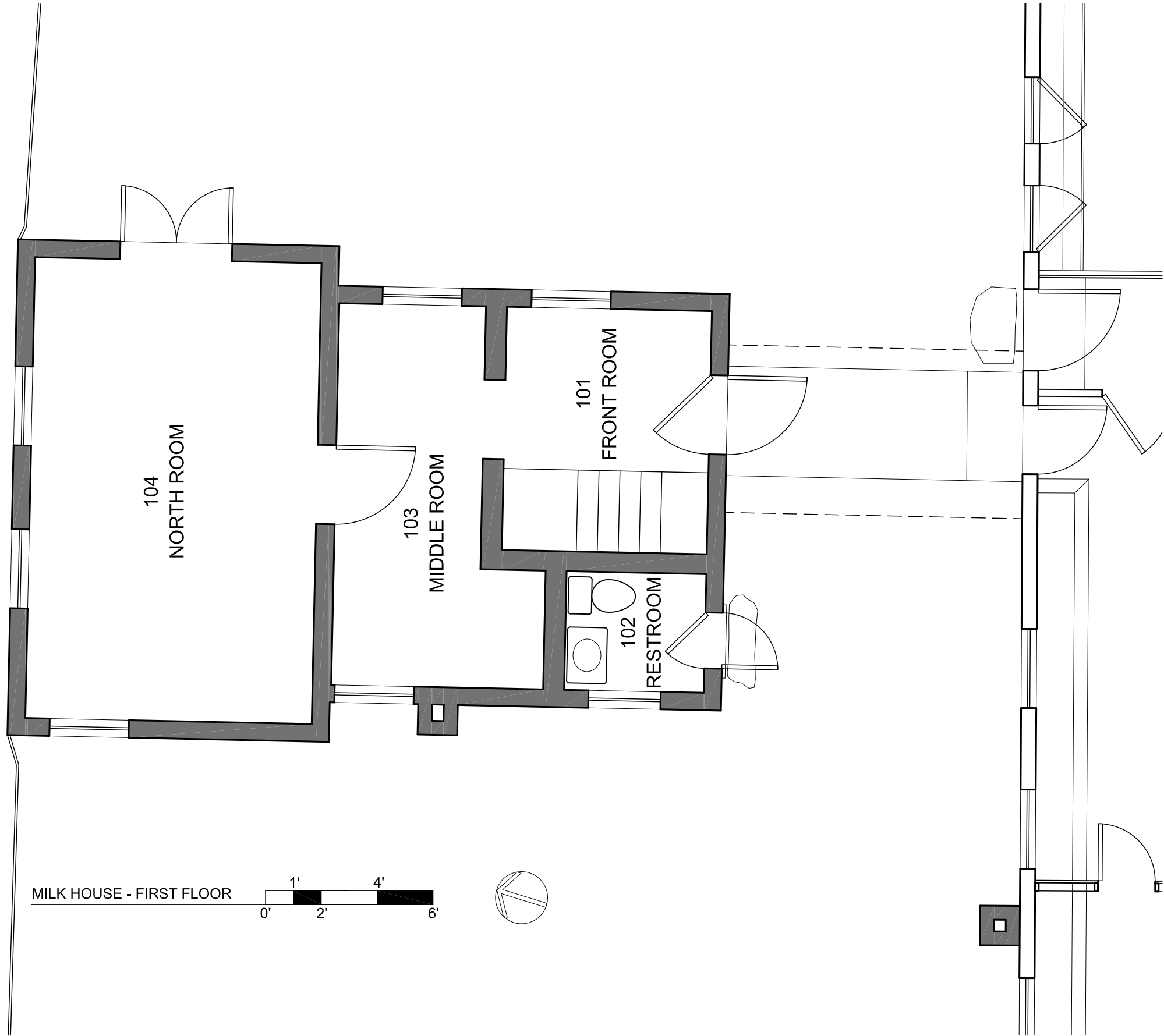
DATE:
08.2011

RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{8}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET

3



CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

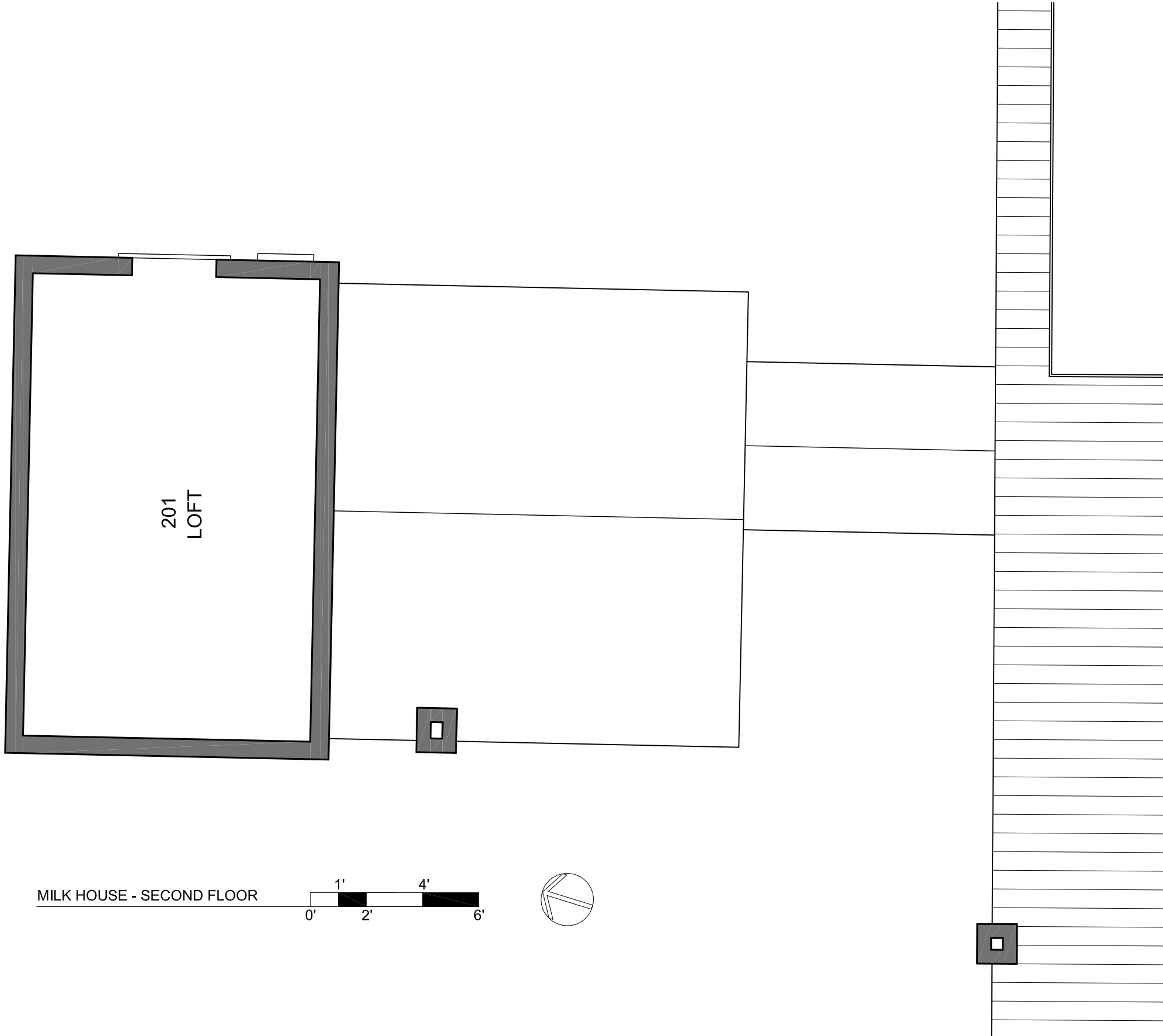
JOSEPH K. OPPERMAN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

DATE:
08.2011

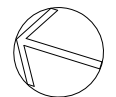
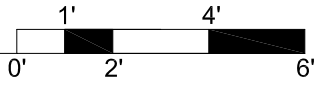
RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{4}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET



MILK HOUSE - SECOND FLOOR



CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

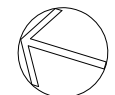
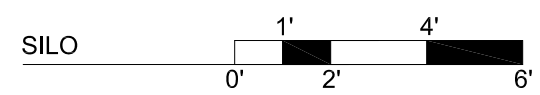
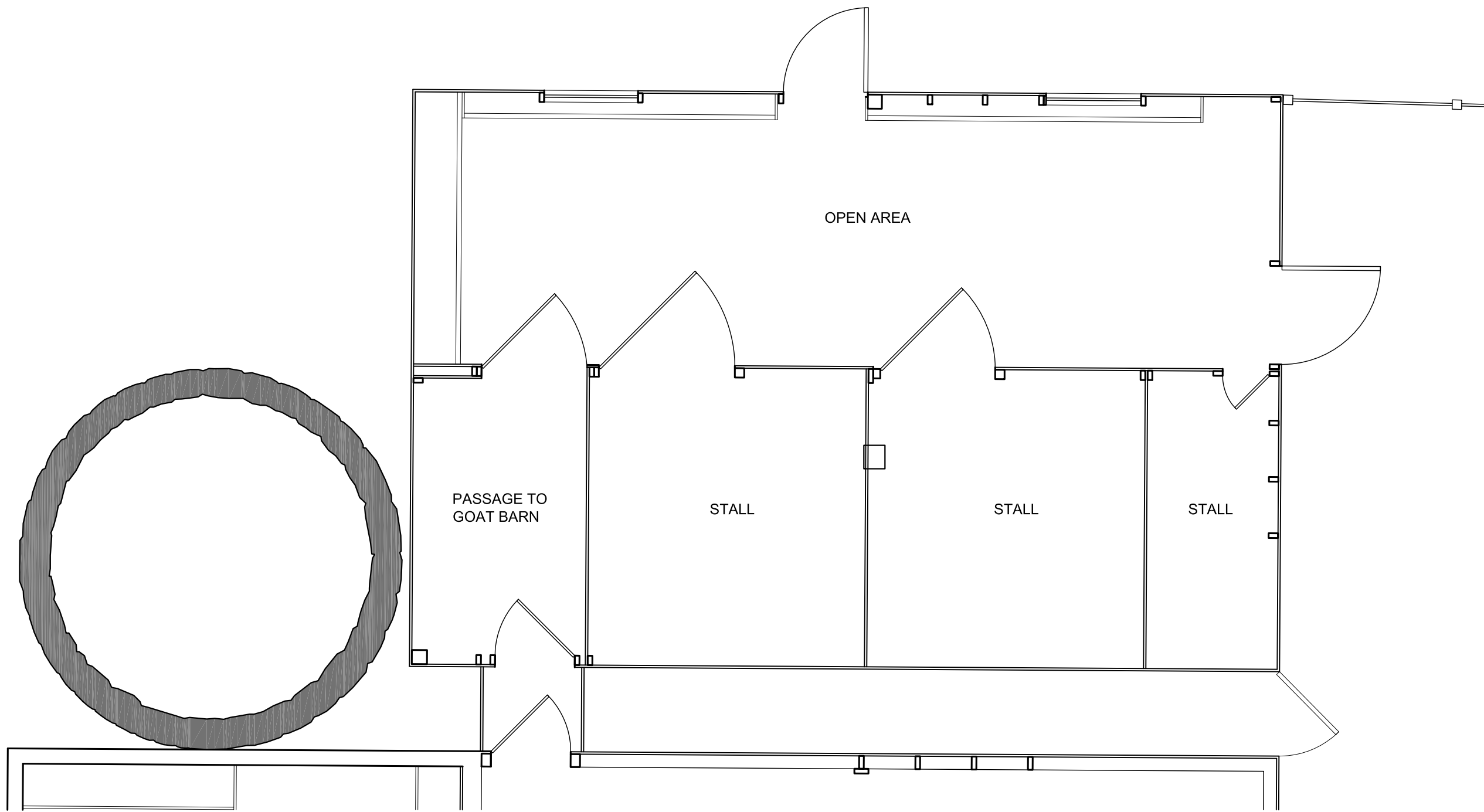
DATE:
08.2011

RECORDED BY:
JKO
RLM

SCALE:
1/4" = 1'0"

APPENDIX A:
AS FOUND
SHEET

JOSEPH K. OPPERMAN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA



JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

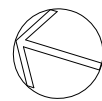
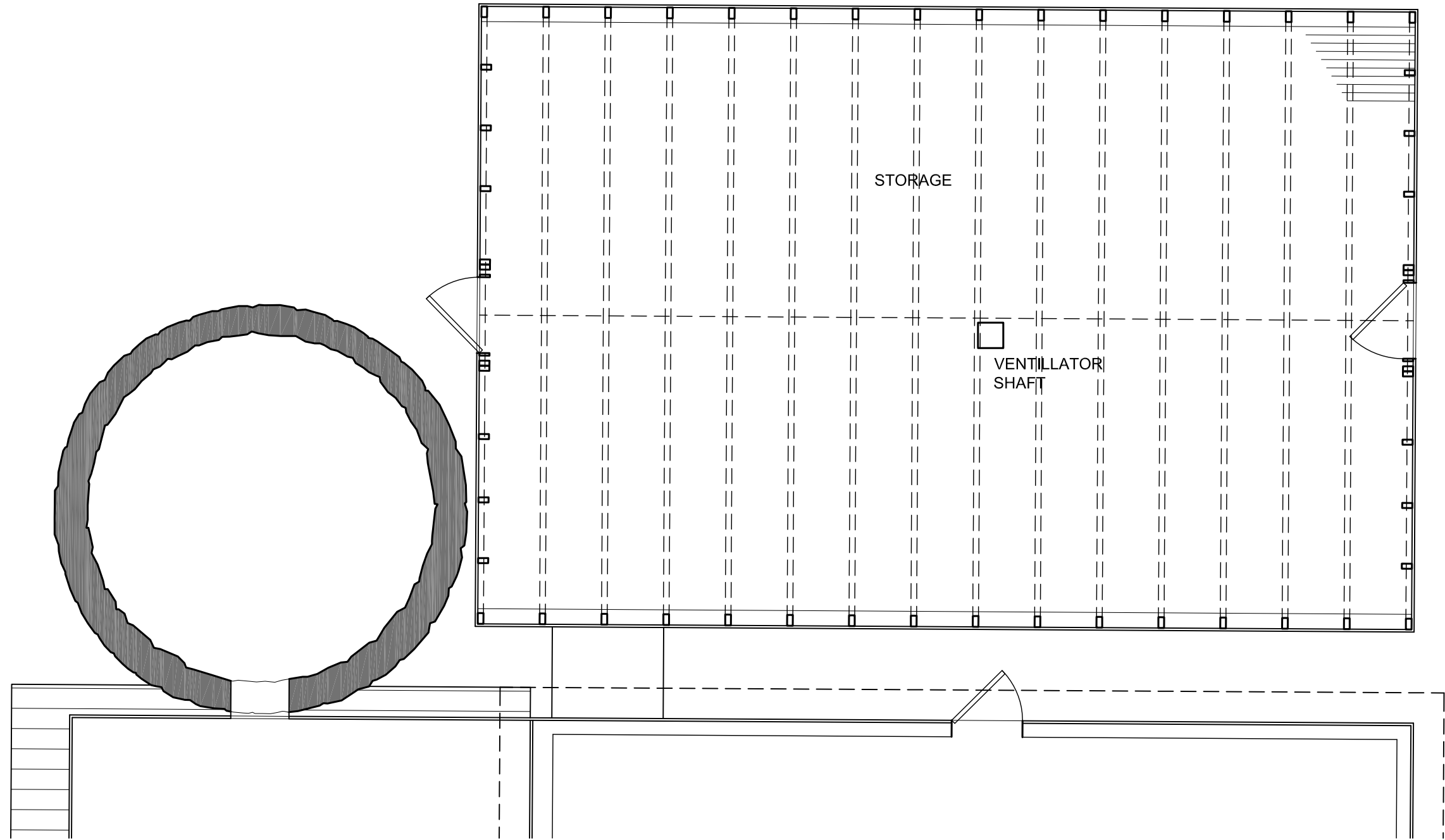
CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

DATE:
08.2011

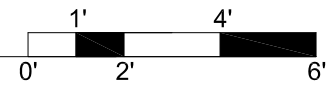
RECORDED BY:
JKO
RLM

SCALE:
1/4" = 1'0"

APPENDIX A:
AS FOUND
SHEET



HORSE BARN - SECOND FLOOR



JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

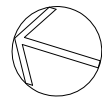
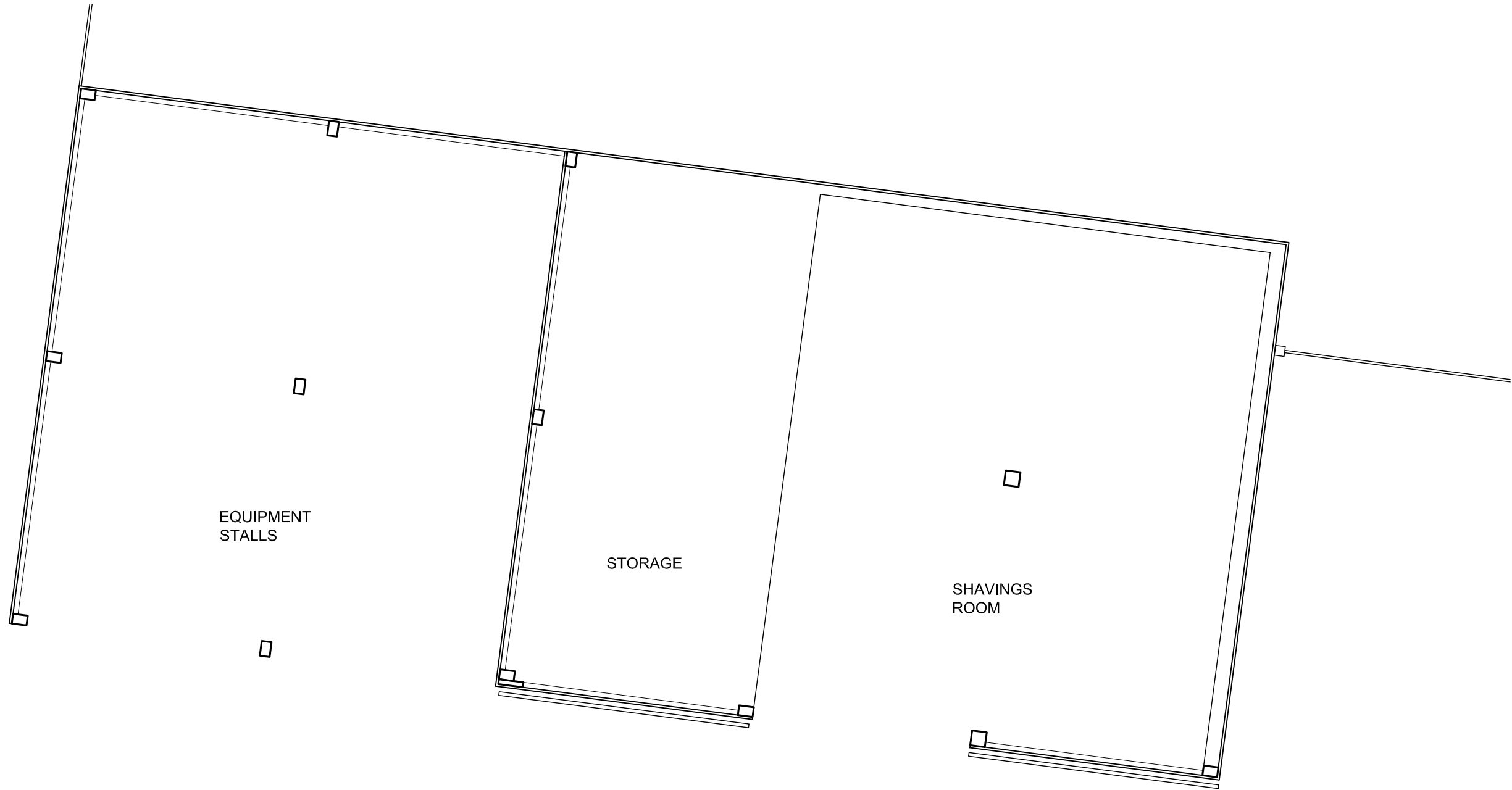
CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

DATE:
08.2011

RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{4}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET



JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

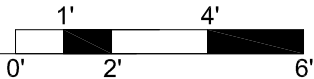
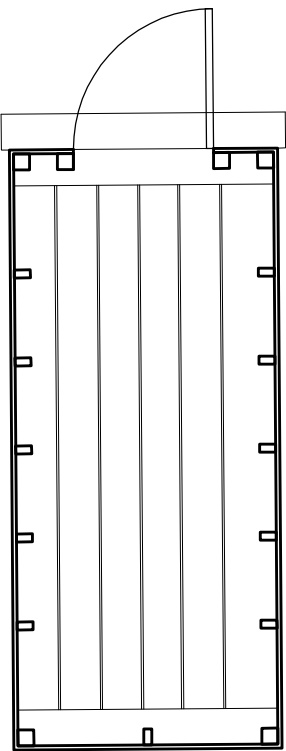
DATE:
08.2011

RECORDED BY:
JKO
RLM

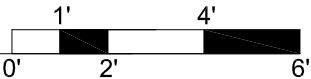
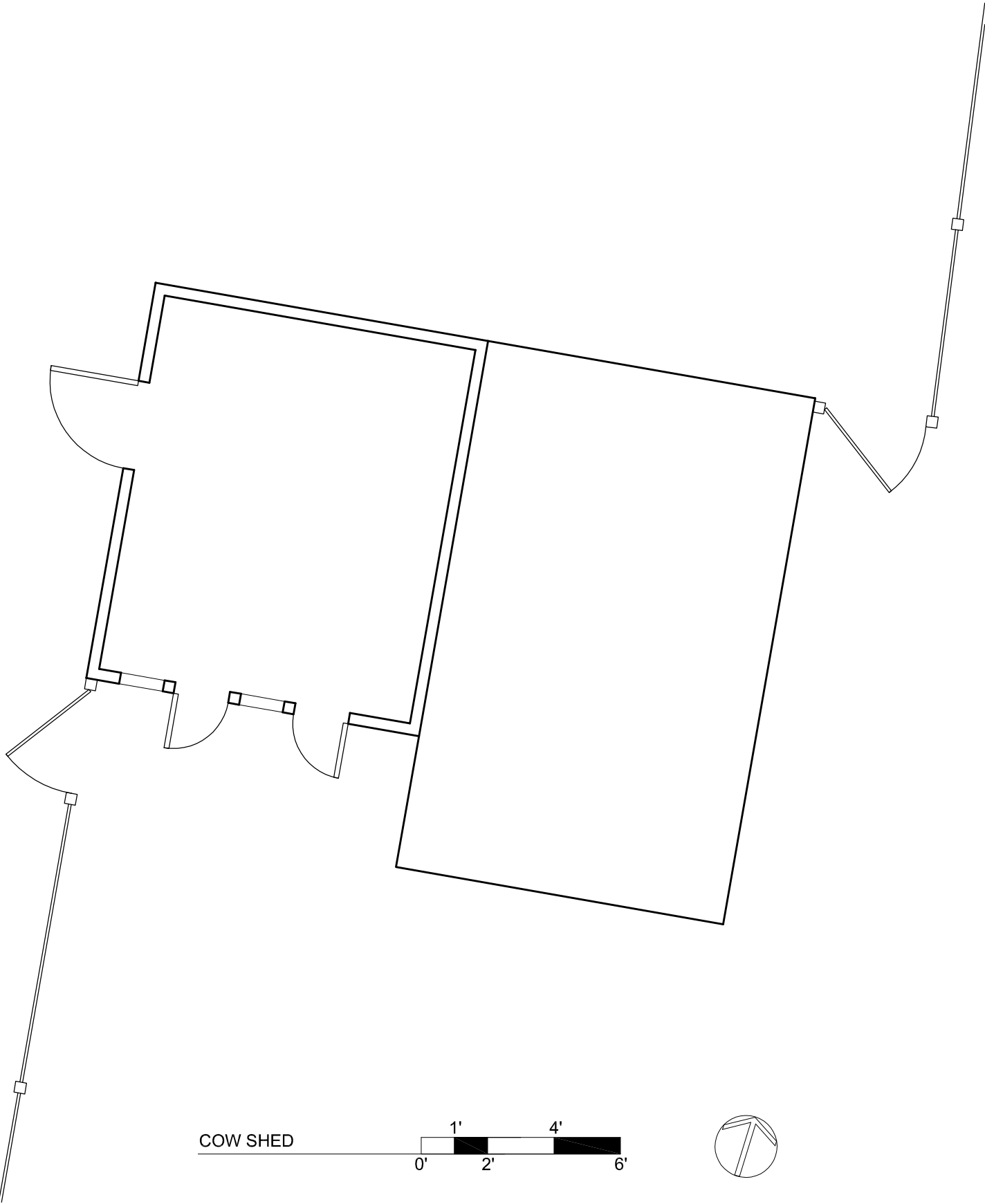
SCALE:
 $\frac{1}{4}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET

CORN CRIB



COW SHED



DATE:
08.2011

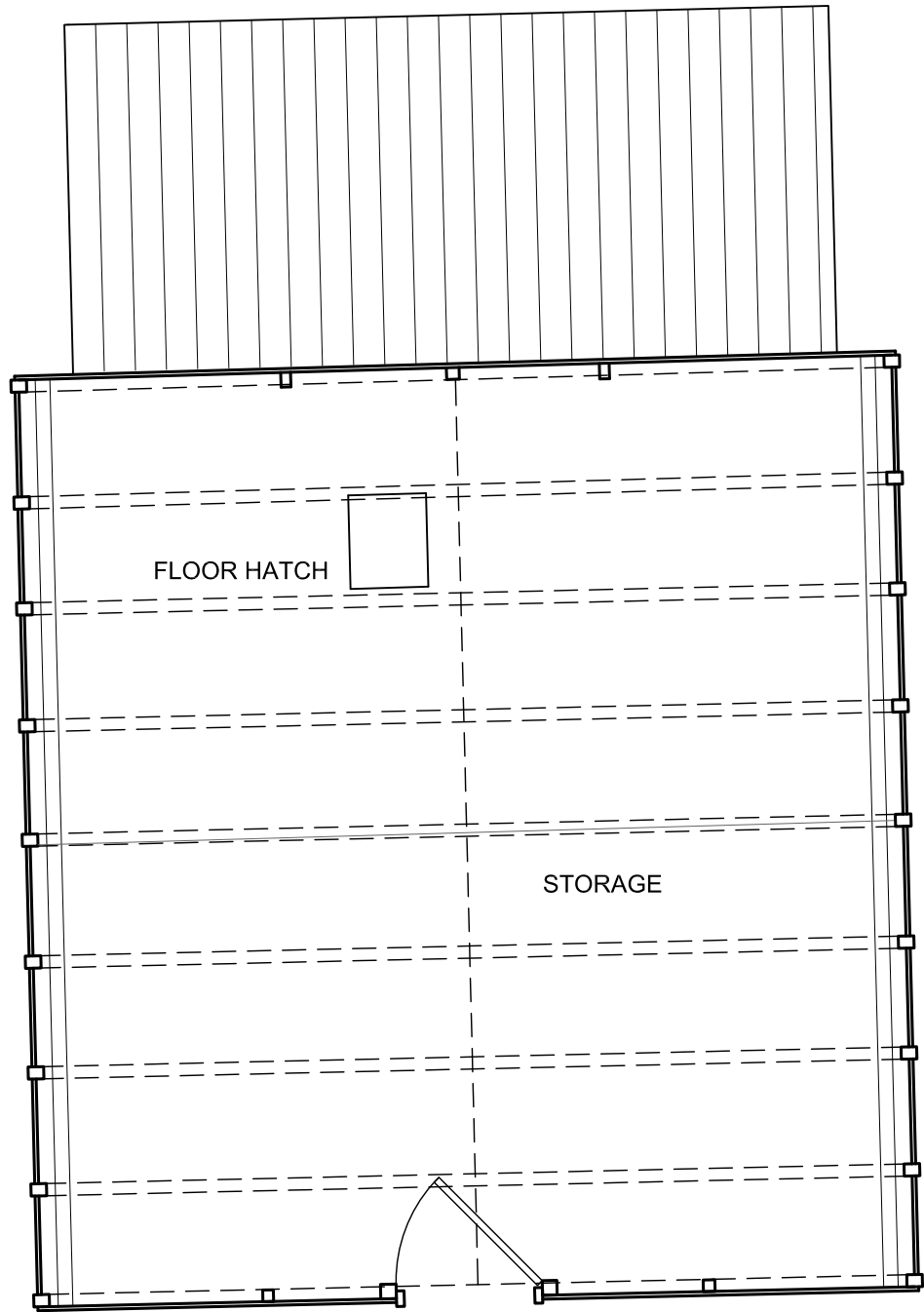
RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{4}" = 1'0"$

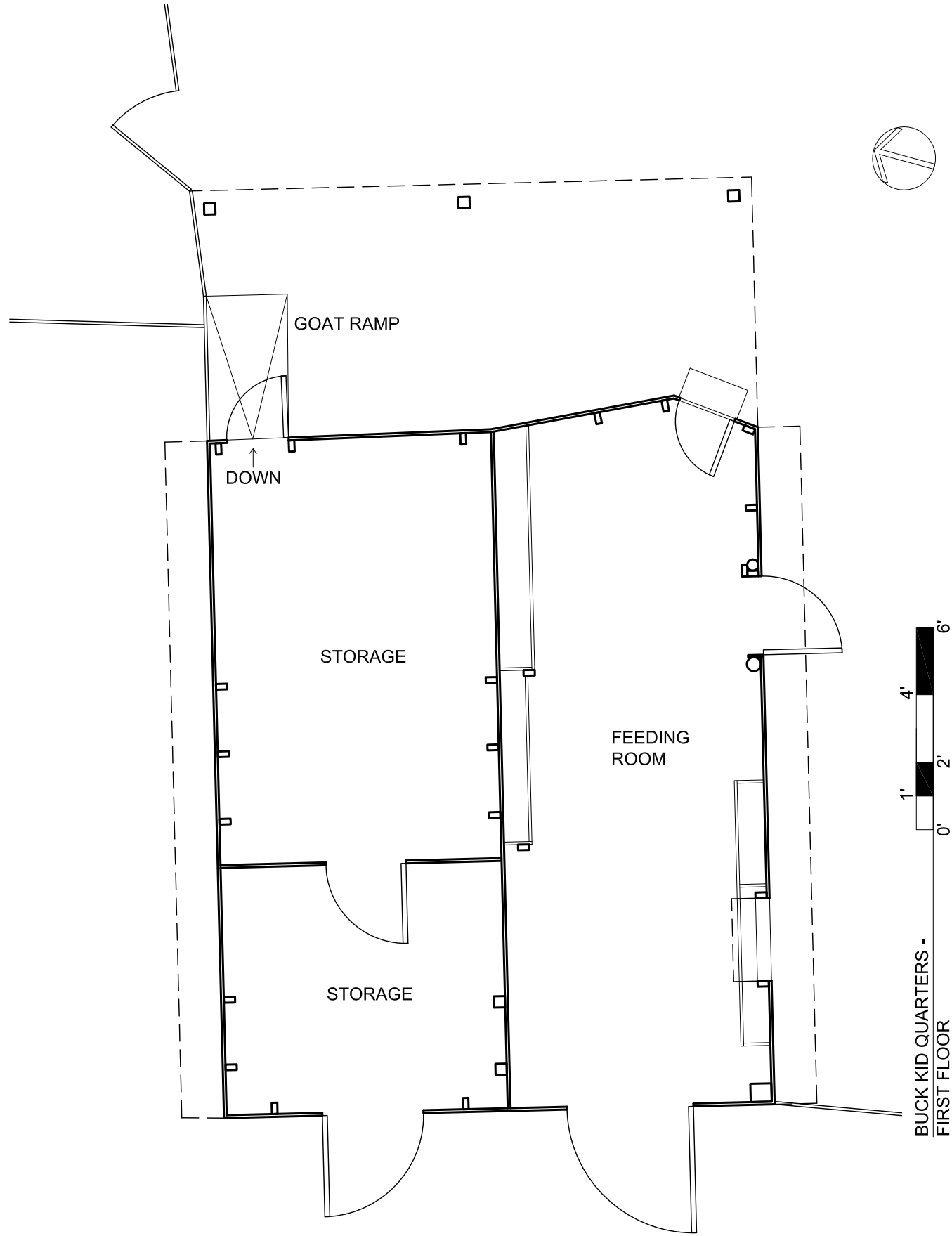
APPENDIX A:
AS FOUND
SHEET

CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

JOSEPH K. OPPERMANN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA



BUCK KID QUARTERS -
SECOND FLOOR



BUCK KID QUARTERS -
FIRST FLOOR

CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

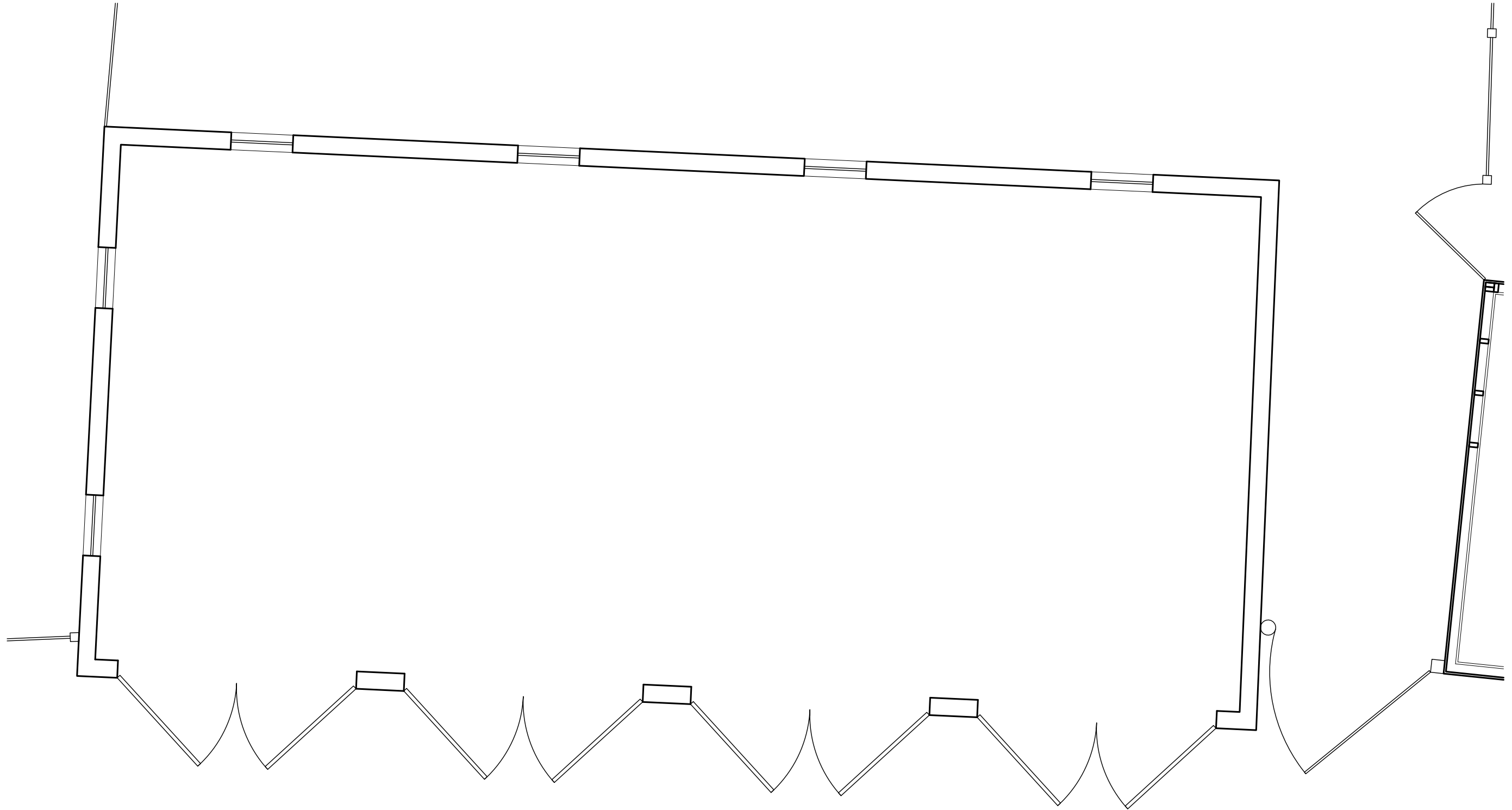
JOSEPH K. OPPERMAN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

DATE:
08.2011

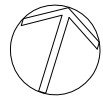
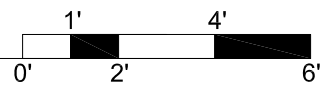
RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{4}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET



BARN GARAGE



JOSEPH K. OPPERMAN - ARCHITECT, P.A.
WINSTON-SALEM, NORTH CAROLINA

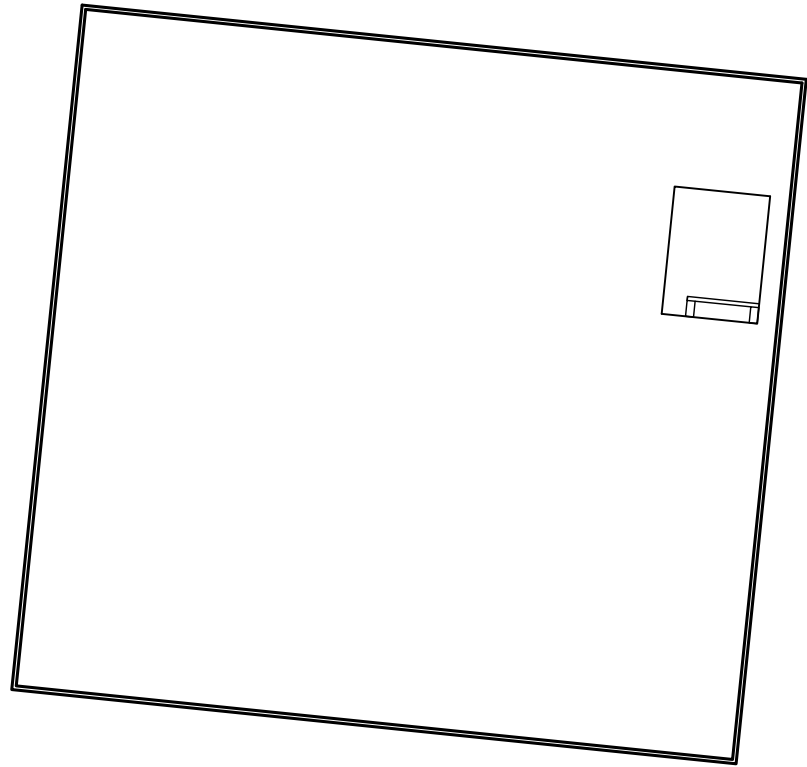
CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

DATE:
08.2011

RECORDED BY:
JKO
RLM

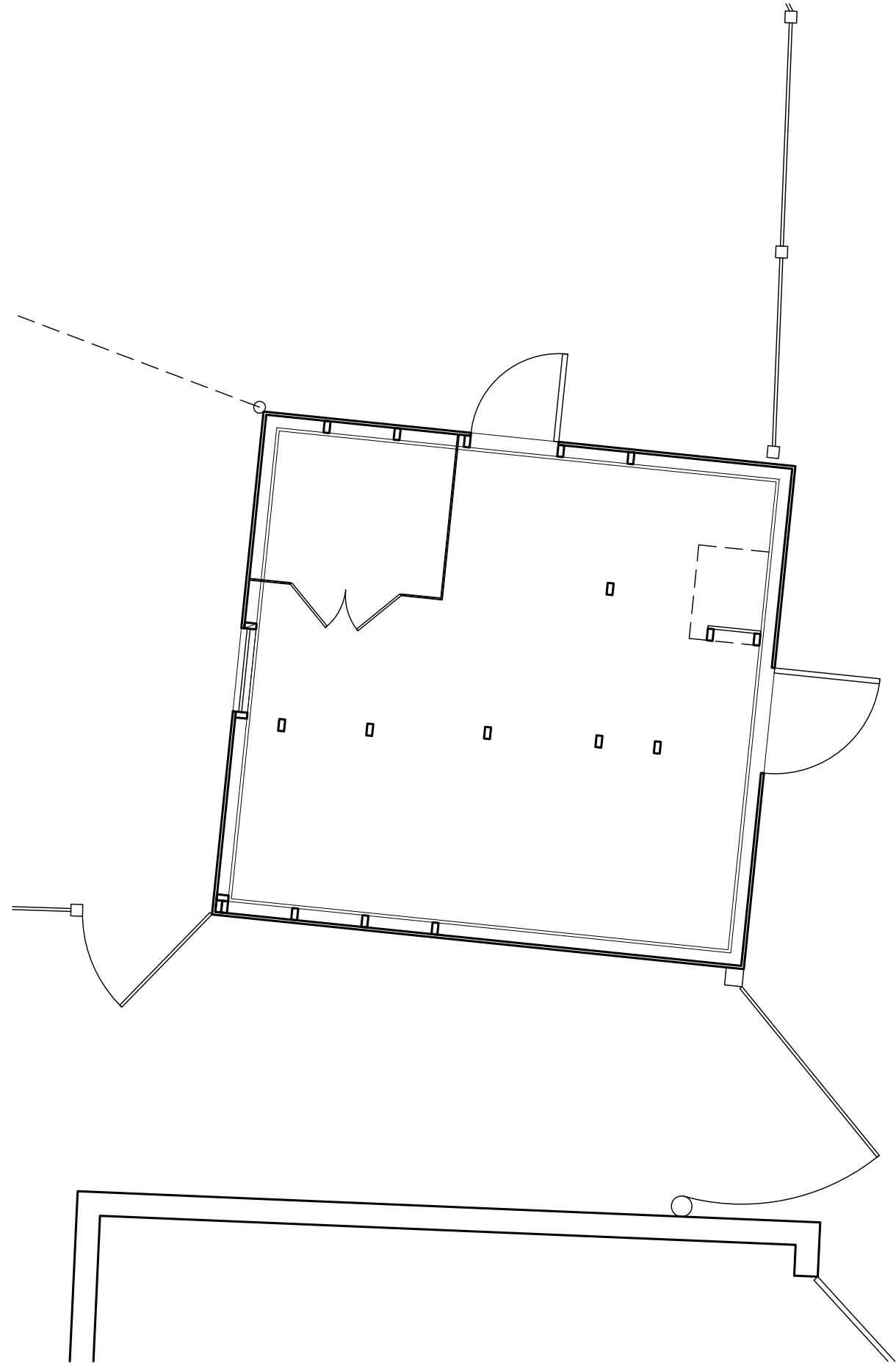
SCALE:
 $\frac{1}{4}" = 1'0"$

APPENDIX A:
AS FOUND
SHEET



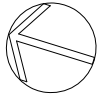
ISOLATION QUARTERS -
SECOND FLOOR

1' 2' 4' 6'



ISOLATION QUARTERS -
FIRST FLOOR

1' 2' 4' 6'



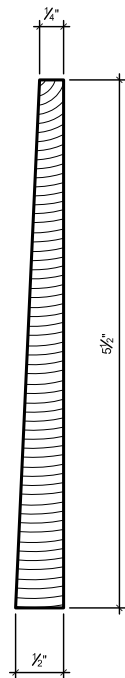
CARL SANDBURG BARN COMPLEX
FLAT ROCK, NORTH CAROLINA

DATE:
08.2011

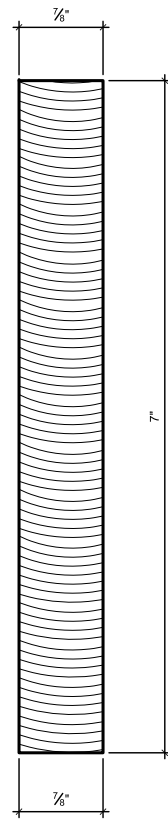
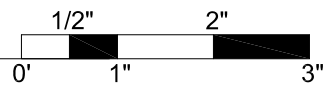
RECORDED BY:
JKO
RLM

SCALE:
 $\frac{1}{4}" = 1'0"$

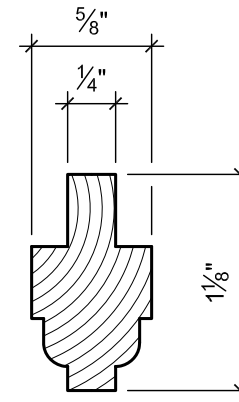
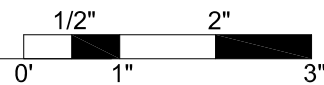
APPENDIX A:
AS FOUND
SHEET



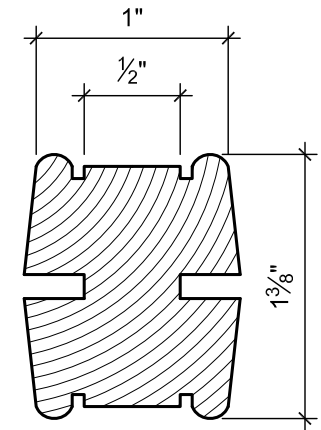
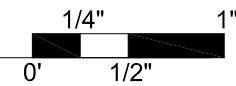
TYPICAL SIDING - GOAT BARN
4 1/2" - 4 3/4" EXPOSURE
ALL EXTERIOR ELEVATIONS



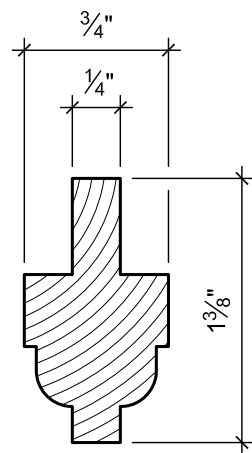
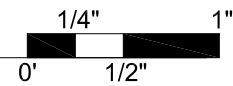
TYPICAL SIDING - DAIRY BARN
5 1/2" EXPOSURE
NORTH WALL (NOW INTERIOR)



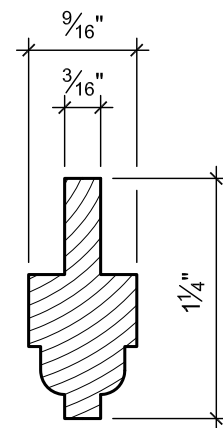
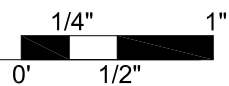
MUNTIN
@ MILK HOUSE
WINDOW



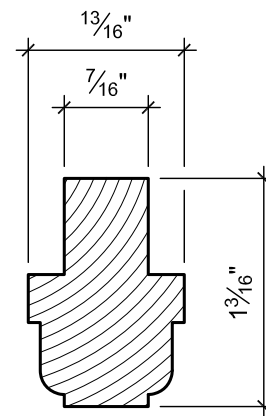
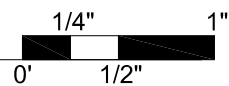
MUNTIN
@ MILK HOUSE
MAIN DOOR



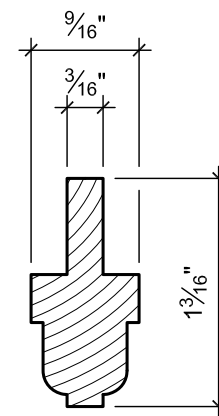
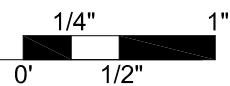
MUNTIN A
@ ROOM 106
GOAT BARN



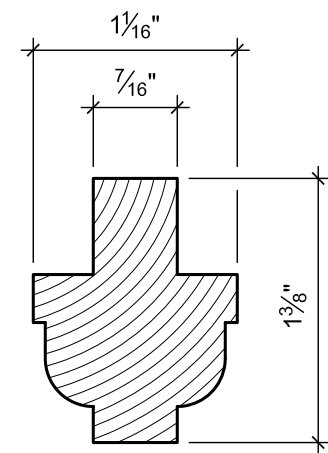
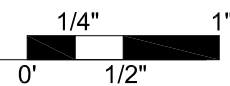
MUNTIN B
@ ROOM 107
GOAT BARN



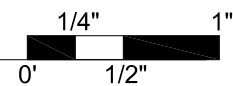
MUNTIN C-1
@ ROOM 108
GOAT BARN



MUNTIN C-2
@ ROOM 108
GOAT BARN



MUNTIN D
@ ROOM 103
GOAT BARN



Appendix B:

Finishes Analysis

Carl Sandburg Home National Historic Site Barn Complex

Finishes Analysis

Flat Rock, North Carolina



December 2014



BUILDING CONSERVATION ASSOCIATES INC

Carl Sandburg Home National Historic Site Barn Complex

Finishes Analysis

Flat Rock, North Carolina

Prepared For

Joseph K. Oppermann - Architect P.A.
Winston-Salem, North Carolina

Prepared By

Building Conservation Associates, Inc.
329 Race Street
Philadelphia, Pennsylvania 19106

CONTENTS

1.0 INTRODUCTION AND BACKGROUND INFORMATION	1
2.0 METHODOLOGY	6
3.0 SUMMARY OF FINDINGS.....	7
4.0 CONCLUSIONS & RECOMMENDATIONS.....	35

APPENDICES

Appendix A: Key to Sample Locations

Appendix B: Sample Stratigraphies and Photomicrographs

1.0 INTRODUCTION AND BACKGROUND INFORMATION

At the request of Joe Oppermann, FAIA, of Joseph K. Oppermann - Architect, P.A. (JKOA), Building Conservation Associates, Inc. (BCA) prepared an analysis of paint finishes for the barn complex of the Carl Sandburg Home National Historic Site in Flat Rock, North Carolina. The goal of the finishes analysis is to provide information related to construction chronology and historic paint colors of the barn complex buildings. This information will be integrated into a Historic Structures Report being prepared by JKOA for the National Park Service, the current owner of the site.

The barn complex consists of ten buildings, of which five were examined as part of this study: Isolation Barn, Goat Barn, Horse Barn, Buck Kid Quarters and Corn Crib. A sixth building, the Buck House, was also examined. (*Images 1-6*) Although the latter, the Buck House, is technically not part of the barn complex (as it exists some distance from the barns) and the work on this building is being performed under a separate contract, it is being discussed with the barn buildings to consolidate all findings and streamline the report writing process. All buildings are located on a farm known as Connemara, which was the home of writer and political activist Carl Sandburg and his family from 1945 to 1968. The period of interpretation for the site is circa 1950, once the Sandburgs acquired the property and made substantial changes that are still in place today.

The barn buildings date from different periods and have experienced different degrees of alteration throughout history.¹ The earliest of the barn buildings are the Isolation Quarters and the Buck Kid Quarters, both believed to have been in the late 19th century by either the Memminger or Gregg family. The Buck Kid Quarters were altered by the Sandburgs in the 1940s-50s and substantially rehabilitated by the NPS in the 1970s. The largest of the structures, the Goat Barn, was built between 1900 and the 1920s by the Smyth family. The main block of the building (the current southern two-thirds of the barn) is believed to be the earliest portion of the building, with the rear (north) and side (west) additions having been added by the 1920s. The Sandburgs also made changes to the building in 1945, most notably the modification of some of the openings on the front of the building and remodeling of the back. Other structures include the adjacent Horse Barn, built by the Smyths between 1900-1915 and altered by the Sandburgs, and the Corn Crib, which may date to either the Smyth or Gregg period. The Buck House, located some distance from the barnyard, is believed to date to the first half of the 19th century and therefore may possibly be attributable to the Memminger family.

This report summarizes the findings of the finishes analyses. Following the introductory information regarding the study methodology, the report discusses the findings of the research and then makes recommendations for appropriate restoration paint colors. All mounted cross-sections have been

¹ All information related to construction dates and alteration chronology included in this paragraph are derived from Section 1B of the draft Historic Structure Report (HSR) prepared by Joseph K. Oppermann Architects.

labeled and permanently housed and will be archived at BCA's Philadelphia office unless otherwise requested by the client.

All work required for the execution of this study was performed by Dorothy S. Krotzer, BCA Regional Director. Paint samples were taken from the site in August 2014 and laboratory analysis was performed in August through October 2014.



Image 1. Goat Barn, August 2014.



Image 2. Horse Barn, August 2014.



Image 3. Buck Kid Quarters, August 2014.



Image 4. Corn Crib, August 2014.



Image 5. Isolation Barn, August 2014.



Image 6. Buck House, August 2014.

2.0 METHODOLOGY

Prior to the site visit and removal of samples, information related to the history the barn complex and Buck House was reviewed. Historic images provided by JKOA were studied in order to gain a general understanding of the history of the buildings and any information related to their exterior paint finishes.

Once the relevant historical documentation was reviewed, a site visit was made and the buildings were physically examined for areas from which representative samples of paint finishes could be removed. Once these intact areas were identified and JKOA consulted, samples were removed. Paint samples were removed using a scalpel or Exacto knife. A total of fifty-five finish samples were removed from the buildings and taken back to the laboratory for analysis. A list of all samples and the location from which they were removed is provided in *Appendix A*.

All finish samples were initially examined in reflected light using a Nikon high-resolution stereomicroscope SMZ-1500 with variable magnification (16x-160x) to identify which samples would be embedded and sectioned for analysis. The selected samples were then mounted in a commercial polyester/methacrylate resin polymerized with a methyl ethyl ketone peroxide catalyst (Bioplast®). Embedded samples were sectioned on a Leco® VC-50 micro-saw for microscopic examination. The sectioned samples were dry-polished using a series of fine Micromesh® polishing clothes ranging from 6,000 to 12,000 grit. Sectioned samples were observed under a Nikon 50i compound microscope in visible light filtered through a daylight correction filter. Photomicrographs of representative samples were taken using a 5 mega pixel Nikon DigiSight color digital camera system and are included in this report to illustrate specific observations.

All paint samples were viewed in cross-section and their paint layering sequences, or stratigraphies, recorded. These stratigraphies are included in *Appendix B*. Once the stratigraphies of every sample were deciphered, significant paint layers were identified and raw samples were manipulated in order to expose these layers for color matching purposes. The exposed layers were visually matched to two different color systems, the standardized Munsell color system and the commercial Benjamin Moore paint palette. All color matches are included in *Section 4.0* of this report.

3.0 SUMMARY OF FINDINGS

Goat Barn (Samples CSB.11 through CSB. 40)

Approximately thirty samples were removed from the Goat Barn in an attempt to help understand the building's construction chronology, and also to provide information about the barn's appearance during the Sandburgs period of occupancy. The latter task proved easier than the former and so its results will be discussed first.

The Sandburgs were known to have made certain changes to the Goat Barn, including altering the openings on the front of the barn and constructing the Milk House and walkway behind the barn. Examination of the paint samples removed from the known Sandburg era alterations revealed that the first paint color on both the siding and the trim was a dark red brown. The following samples removed from known Sandburg alterations contain red as the first layer: CSB.36 (removed from the weatherboards in the gable of the dormer above the west entrance on the front elevation), CSB.31 (removed from the interior side of the weatherboards installed along the existing rear elevation), and CSB.18 (removed from the underside of the roof sheathing on the hyphen leading to the Milk House). *(Image 7)* This physical evidence is consistent with the archival evidence. An invoice from the Rigby-Morrow Company building materials supplier includes "Estee Red" paint identified by Mrs. Sandburg as being for the barn. In addition, historic photographs of the Goat Barn show it being painted a dark color, both weatherboards and trim, in 1946, 1949 and 1954. *(Images 8-11)* By 1956, however, the trim was painted white. The next available photographs, which date to 1971, show the barn in a weathered state with dark red paint on both weatherboards and trim. It is unclear, from either physical or archival evidence, how long the trim was painted white from 1956 to 1968 when the NPS acquired the property. *(Image 12)*

Using the paint evidence to answer questions about the construction chronology of the Goat Barn was more challenging. However, some conclusions can be drawn about the construction based on paint evidence. For example, paint samples removed from protected areas of original exterior siding that are now preserved inside interior spaces (CSB.28 and CSB. 37), as well as existing exterior siding on the rear elevation of the west addition (CSB.23) and the east end wall of the rear shed (CSB.12) contain the same basic paint layering sequence, including the same original color. In these locations, the first paint layer is a pale yellow, which is followed by two layers of cream and then between one and three layers of dark red. The presence of the same first paint layer in these three locations suggests that these components of the barn all date to the same period and are original. It also indicates that the first floor level of the rear elevation of the main block of the barn was treated like the exterior during the early part of its history. The presence of the same early paint colors as were found on existing exterior surfaces indicates these surfaces were treated like the exterior, suggesting the rear shed was open until the Sandburg period of occupancy. *(Images 13-15)*

It should be noted, however, that the surface of the wood substrate in each of the samples discussed above is very weathered. So, it is also possible that these elements date to different periods of construction and were allowed to weather, unpainted, before being painted pale yellow at some early point in the barn's history and during the Smyth period of ownership.

It is also interesting to note that the uppermost paint layer of sample CSB. 37, which was removed from a weatherboard on the original rear elevation of the barn now enclosed by a second story hay loft, is red. This indicates that the exterior of the barn was red when the second story hayloft was added. If this hayloft was added by the Smyths, then this means the Goat Barn was painted red before the Sandburgs' arrival at Connemara. It seems more likely that the Sandburgs were responsible for adding the rear second story hayloft, but that they did not do so immediately upon acquiring the property.

The exterior window and door trim were also investigated. The trim around window openings on the original rear elevation of the Goat Barn (now enclosed) was painted white. Samples removed from the first and second floor level in this location (CSB.29 and CSB.38) both have two layers of white before being painted red. It is possible, however, that these windows were added by the Sandburgs because of the few number of paint layers they possess. (*Image 16*) For instance, a sample removed from the door trim on the west elevation of the main block of the Goat Barn (CSB.27) has seven layers of white finishes (a combination of lime wash and white paint) before being painted red six times. This sample most likely represents the full spectrum of trim colors from the original period of construction through current day, indicating the trim was painted white until some time during the Sandburg period. (*Image 17*)

Photographic evidence supports the presence of white as a trim color during both the Smyth and Sandburg periods of occupancy. *Image 18* shows the barn circa 1915 when the Smyths owned the property, and the trim color is white while the body of the barn is a medium color, presumably the early pale yellow or cream. *Image 8* shows the barn in 1946, once the Sandburgs owned the property, and the window trim appears to be the same color as the siding (dark red). Although the window and door trim appears to remain dark red during the majority of the Sandburg's occupancy, there was a point after 1954 when the trim was painted white, as evidenced by *Image 11*.

A sample removed from the window casing of the rear elevation (CSB.21) does not conform to this theory. In this location, the casing was painted the same color as the siding (pale yellow, creams, dark reds). However, there is an anomalous dark green between the most recent cream and the first red, which was not seen anywhere else on the Goat Barn. It is unclear if the green relates to the window trim or the siding, since the sample was taken where the casing meets the siding. It is also curious that this window would have early paint at all, since it is part of the existing rear elevation that was

known to have been enclosed by the Sandburgs. It is possible the window was removed from another location on the barn and installed here when the rear shed was enclosed.

It should also be mentioned that the Sandburgs often reused materials and building elements from other locations, including the main house. For instance, records show that they brought gates and doors with them from Michigan specifically for use in the Goat Barn.

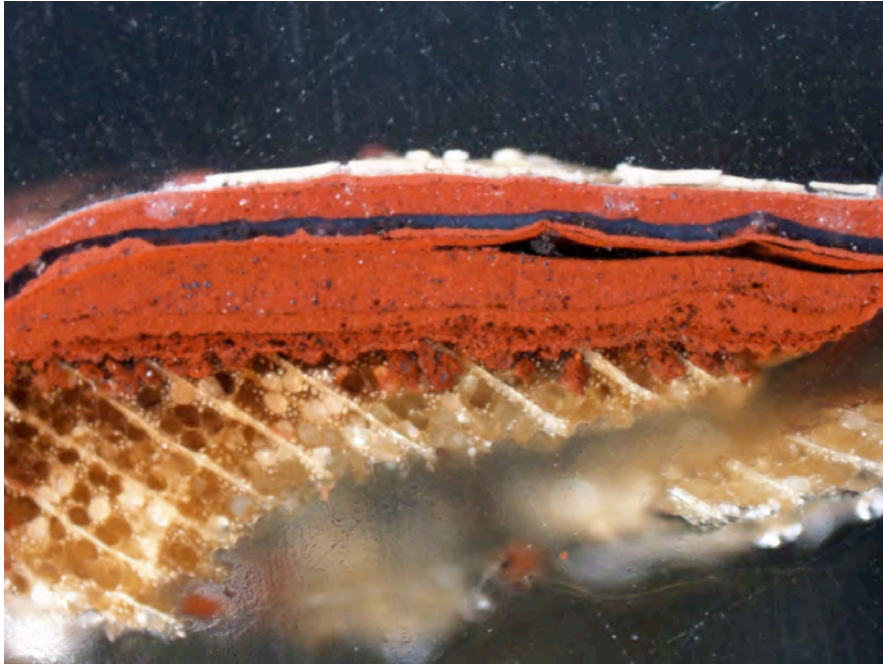


Image 7. Cross-section of sample CSB.36, removed from one of the weatherboards in the gable of the hayloft opening added by the Sandburgs to the front of the Goat Barn. Note the presence of only dark red paint. (40x, Visible Light)



Image 8. The Goat Barn, circa 1946, showing a dark paint color on the weatherboards and window casing. (CARL 3000-02-09P)



Image 9. The Goat Barn, circa 1949, showing a dark paint color still remains on the building. (CARL 3000-11-28P)



Image 10. The Goat Barn, circa 1954, with Mrs. Sandburg and her goats. Note the dark paint colors on barn. (CARL 3000-04-04P)



Image 11. The Goat Barn, circa 1956, showing a dark color on the body of the barn and white window casings. (CARL 3003-2.3-1)



Image 12. The Goat Barn, circa 1971, once the NPS acquired the property. Note the red color on the barn and its deteriorated condition. (CARL 4009-2-1-G-84)

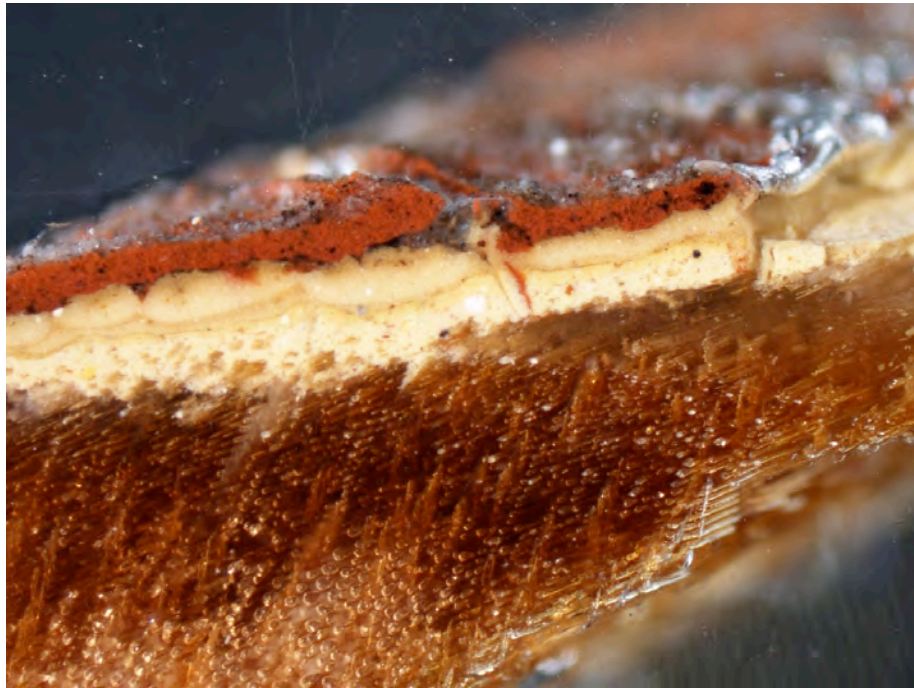


Image 13. Sample CSB.37, removed from the siding of the original rear elevation of the Goat barn, now enclosed by the second story hayloft. Note early pale yellow and cream layers below a single layer of red paint. (40x, Visible Light)



Image 14. Sample CSB. 23, removed from the east elevation of the rear shed. Note same early colors as in sample above. (100x, Visible Light)



Image 15. This sample (CSB.12) was removed from the siding of the rear elevation of the west shed addition. It too has the same early paint layers as in the above samples. (100x, Visible Light)

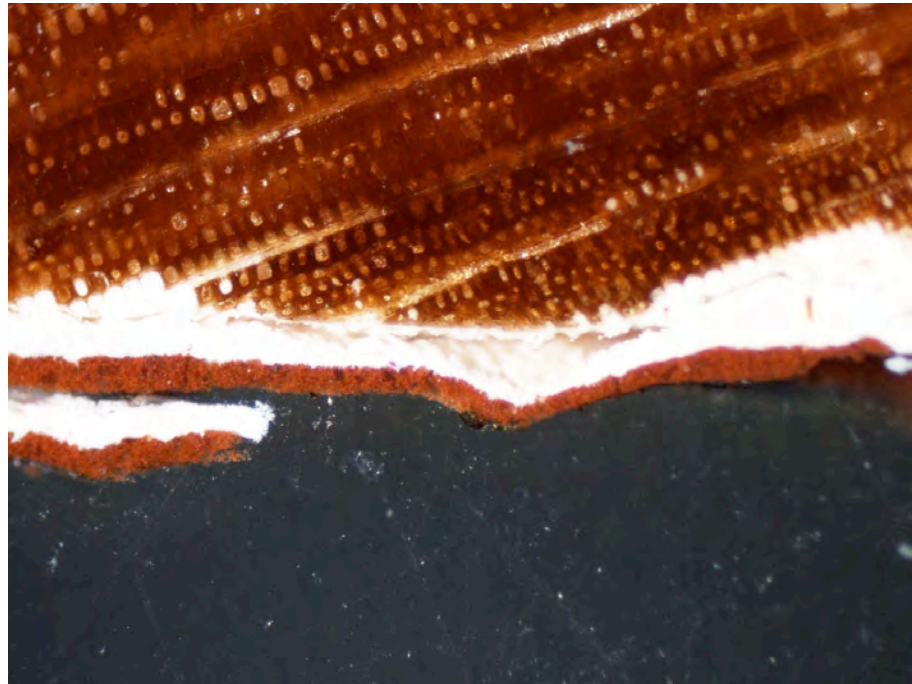


Image 16. Sample CSB.38 was removed from the same area as Sample CSB.37, the now enclosed second floor level rear elevation of the Goat Barn. This sample was removed from the window casing and shows only two layers of white and then a layer of red paint. (100x, Visible Light)



Image 17. Sample CSB.27 was removed from the door trim on the west elevation of the Goat Barn and contains several layers of white finishes before red paint began to be applied. (40x, Visible Light)



Image 18. The Goat Barn and Horse Barn, circa 1915, showing a medium to light colored paint on the body of the building and a very light color (white) on the windows and doors. (CARL 3001-04-01P)

Horse Barn (Samples CSB.7 through CSB.10)

The Horse Barn was built by the Smyths in the early 20th century and modified either by the Smyths or the Sandburgs. The alterations include enclosing of the front elevation with weatherboards and installing a smaller door on this elevation, altering the original gambrel shaped door opening. It is unclear when this change was made, but it was in place by 1946, when a photograph shows this configuration. (*Image 19*) When the NPS took over the property and began making repairs to the barn buildings in the 1970s, a substantial amount of the barn's siding was replaced, particularly to the west of the current front door opening. (*Images 20-21*)

Paint samples were removed from four locations on the exterior of the Horse barn, three from the front (south) elevation and one from the west elevation. All samples were removed from the weatherboards, except sample CSB.10, which was removed from the casing of the front door. The weatherboard samples, all of which were removed from weatherboards that were not replaced in the 1970s by the NPS and are believed to be original, share a very similar paint layering sequence. They all have evidence of an early pale green paint and an early cream paint. After this, the weatherboards were painted dark red between seven and eleven times. The cream paint looks very similar to the second or third cream paint layer on the Goat Barn and most likely relates to the same Smyth period paint campaign. The sample removed from the door casing does not contain either of the cream or pale green paint finishes. Instead, its first paint color is dark red followed by white and seven layers of dark red. None of the historic photographs show white trim on this building once the front door configuration was changed. However, the paint sample evidence suggests that it was painted white early in the barn's history. (*Image 22*)

It is very likely that the paint color on the horse barn as depicted in the circa 1915 photograph was either the pale green or cream. By contrast, the Sandburg photograph from 1946 shows the Horse Barn finished with a dark color, presumably the dark red paint. The trim color appears to be red as well; there is no photographic evidence of white paint on the door or window casing. It appears that the barn was painted red from the 1940s until the current day.



Image 19. The Horse Barn, circa 1946. (CARL 3000-02-09P)



Image 20. The Horse Barn, circa 1971. (CARL 4009-2-I-G-101)



Image 21. The Horse Barn, circa 1972. (CARL 4008-19-07P)



Image 22. Sample CSB.7 was removed from the upper area of siding on the front elevation of the Horse barn, the area that was not modified. The early pale blue-green and cream paint colors visible at the top of the photograph are believed to be original to the barn. (100x, Visible Light)

Buck Kid Quarters (Samples CSB.3 through CSB. 6)

Photographic evidence shows that the Sandburgs modified this building by adding wide plank weatherboards to the west elevation to replace earlier slatted siding by 1952. They also enclosed the south elevation of the building with vertical siding. In a circa 1915 photograph, taken well before the Sandburg modifications, the siding of the west elevation appears unpainted or possibly with a weathered finish. (*Image 23*) In a photograph taken after the Sandburg changes, which may date to either 1948 or 1954, the siding appears unpainted while the rake boards appear to be painted a dark color. (*Image 24*) In the 1952 photograph, the building (including the weatherboards) appears dark and may be unpainted or painted a dark color. (*Image 25*) An undated photograph from the University of Illinois at Urbana-Champaign Library also shows a building that may or may not be painted. Because the image is taken from a distance and is black-and-white, it is difficult to discern the paint finish. (*Image 27*) By 1972, the building had fallen into a state of disrepair and was substantially rehabilitated by the NPS. Photographs from this year show total removal of the roof structure, but the weatherboards of the west and south elevation appear intact. (*Image 26*)

Four samples were removed from the Buck Kid Quarters, three from the exterior and one from the interior. The three exterior samples, removed from weatherboards on the north, west and east elevations, contain between three and six layers of dark red paint. The sample removed from the west elevation has the greatest number of paint layers (six), as well as the most disturbed substrate condition. This evidence suggests that these weatherboards were unpainted for a time prior to being painted with the red paint. (*Image 28*)

The sample removed from the interior of the building (CSB.6) has a different paint layering sequence. This sample, removed from a diagonal framing brace that was most likely exposed prior to the Sandburgs enclosing this elevation, contains six layers of white lime wash and one layer of red paint. (*Image 29*)

Based on the photographic and physical evidence, it appears that the Buck Kid Quarters was most likely lime washed originally and then painted with a dark red color either by the Sandburgs or the NPS. The photograph from 1952, although only a black-and-white image, does seem to suggest a painted building (although this would then mean that the photograph in *Image 24* would have to date to 1948 because it clearly shows unpainted weatherboards).

The 1952 photograph also shows white paint on the door surround of the west elevation. However, this door opening has been modified since the 1952 photograph, since it appears as a five-panel door in this photograph and a vertical-board door with a seemingly different surround in the later photograph in *Image 27*. Evidence of the white paint color on the door surround of the west

elevation that is visible in the 1952 photograph, could not be found as part of the current study, suggesting the door and surround have indeed been replaced.



Image 23. The Buck Kid Quarters, circa 1915. (CARL 3001-05-01P)



Image 24. This photograph of the Buck Kid Quarters, may be from either 1948 or 1954 (both dates are on photograph in the archives). Note that the weatherboards appear unpainted, but the gable and fence appear to be painted a dark color. (CARL 3000-01-54P)



Image 25. The Buck Kid Quarters, circa 1952. The building appears painted and the door casing is a light color, presumably white. (CARL 3000-01-40P)



Image 26. The Buck Kid Quarters, 1972, when the NPS performed significant repairs on the building. (CARL 4008-16-13P)



Image 27. An undated photograph from the *Carl Sandburg Collection Photographs* of the University of Illinois at Urbana-Champaign Library, shows the Buck Kid Quarters in active use during the Sandburg period. It is still unclear whether the weatherboards and trim are painted, however note the different door than in *Image 25* above. (Rare Book and Manuscript Library, University of Illinois at Urbana-Champaign, *Carl Sandburg Collection Photographs*, Inventory Number 014-028-008. www.library.illinois.edu/contentdm/cdm4/item_viewer.php?CISOROOT=/sandburg&CISOPTR=544&CISOBX=1&REC=9; accessed 10 June 2012)



Image 28. Sample CSB.4, removed from a plank between joist ends on the north elevation of the Buck Kid Quarters, has only four layers of red paint. The wood substrate is highly weathered. (40x, Visible Light)

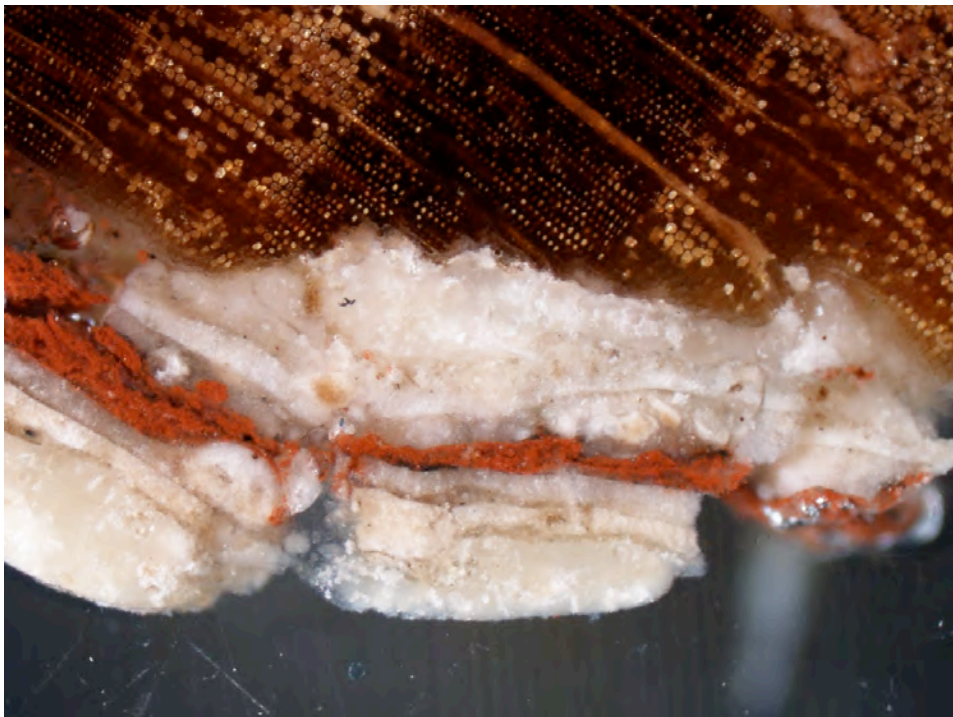


Image 29. Sample CSB.6, removed from a diagonal brace inside the Buck Kid Quarters, shows evidence of whitewash and a layer of later red paint. This element appears to be original to the building. (40x, Visible Light)

Isolation Barn (Sample CSB.44)

Two samples were removed from the exterior wide plank weatherboards of the Isolation Quarters, one from the north elevation and one from the west elevation. The latter sample was removed from a protected area and contained more layers of finishes, and was therefore examined in cross-section. In this location, a total of seven layers of finishes were documented, two layers of white lime wash, one layer of white paint and four layers of red paint. (*Image 30*)

Historic photographs of the Isolation Barn are limited to those from the 1970s, once the NPS gained ownership of the property. These photographs show a dark-colored barn, presumably painted red, with some replacement boards and a new door that had not yet been painted. According to JKOA, there is documentation that the Sandburgs painted the Isolation Quarters red by the end of their period of occupancy, and this may be the paint color visible in the 1971 NPS photograph in *Image 30*. However, it is not possible to know if this building was painted red in 1950, the site's period of interpretation. (*Image 31*)



Image 30. Sample CSB.44 was removed from the west elevation of the Isolation Barn and contains early lime wash and white paint finishes, as well as more recent reds. (40x, Visible Light)



Image 31. The Isolation Barn, 1971. (CARL 4008-12-02P)

Corn Crib (Samples CSB.1 and CSB. 2)

Samples were removed from protected areas of the building, under the roof overhang. One sample was removed from the wood slat above the door and the other from the uppermost piece of lath under the roofline. The door was also investigated in situ. In all of the locations that were examined, only recent campaigns of red paint were observed. In the samples viewed in cross section, five layers of red paint are present on top of a weathered wood substrate. (*Image 32*)

Historic images of the corn crib suggest its exterior was either unpainted or treated with a light colored finish, most likely lime wash. Two undated historic photographs from the Smyth era show this light colored appearance. No physical evidence of a light colored finish, such as a lime wash, was found during the current study. The lack of a light-colored finish does not provide conclusive evidence either way regarding the corn crib's early finish history, since it is possible that there was a light colored finish that weathered off but it is also possible that the wood was originally unpainted. Neither the photographic or physical evidence provides conclusive information on the corn crib's early finishes.

Photographs from 1956 and 1971 show a dark-colored, presumably painted, corn crib. It is unfortunately not possible to know if the existing paint on the corn crib dates back to the 1950s. It is also not possible to know if the color on the corn crib in the 1956 photograph is red, but it is very possible based on the paint evidence found on the other barn buildings. (*Images 33-35*)



Image 32. Sample CSB.2 was removed from a slat above the door of the Corn Crib. Note highly weathered wood substrate. (40x, Visible Light)



Image 33. The Corn Crib during the Smyth era. (CARL 3001-I6-22P, Smyth Family Photograph Collection)



Image 34. The Corn Crib, 1956. (CARL 3003-2.3-1)



Image 35. The Corn Crib, 1971, under NPS stewardship. (CARL 4008-15-02P)

Buck House (Samples CSB.45 through CSB. 55)

Exterior

Paint samples were removed from five locations on the exterior of the Buck House, including four from the main building block and one from the enclosed rear shed. In all locations, the wood substrate appears rough and weathered, suggesting the earliest paint in these areas is most likely not original. Three of the five samples have the exact same paint layering sequence: four layers of dark red paint. The locations of these samples include the siding of the rear shed, the siding on the south elevation of the main portion of the building and the cornice on the south elevation of the main portion of the building. (*Image 36*)

A sample removed from the front (east) elevation that is protected by a porch contains the same four layers of dark red paint. However, underneath the red paint is a pale yellow paint that looks very similar to the pale yellow found on the Goat Barn. As stated previously, this pale yellow is probably not the Buck House's original paint color, given the disturbed surface of the wood substrate on which it was applied, but it is still likely early. Although it is not known when it was applied, if it the same as the pale yellow on the Goat Barn, then it most likely dates to the Smyth period. (*Image 37*)

A sample removed from the corner trim of the main portion of the house (where it meets the enclosed rear porch) also has traces of earlier paint finishes. This trim piece contains evidence of dark green and white paint, suggesting the trim was treated differently from the weatherboards on the body of the house. The green was most likely applied to the house when the siding was pale yellow and the white when the first layer of dark red was applied. (*Image 38*)

Interior

The samples removed from the interior do not provide a particularly coherent picture of the house's interior paint scheme, but some observations can still be made. First, the window and door trim in the south room of the main portion of the building (CSB.50 and CSB.51) have more paint layers than the trim in the north room (CSB.53 and CSB.54). The trim in the south room has a total of five paint layers, the first of which is green. The second paint layer is dark green, followed by a dark orange and then two layers of pale green. By contrast, the trim in the north room contains only the dark green and the dark orange. The fact that this interior trim contains only the middle paint layers in the sequence suggests that it was installed later than the trim in the south room and that it was also re-painted less frequently. The lack of more recent re-painting may relate to how the two rooms were used later in the house's history. (*Images 39-40*)

The mantelpiece (CSB.52) retains a good bit of paint evidence and appears to have been varnished originally. It is a hardwood, possibly mahogany, so a varnish treatment would not have been

surprising. After the varnish, the mantelpiece was painted dark gray twice, then dark green, dark orange and light green. The latter three colors directly relate to the window and door trim paint colors. (Image 41)

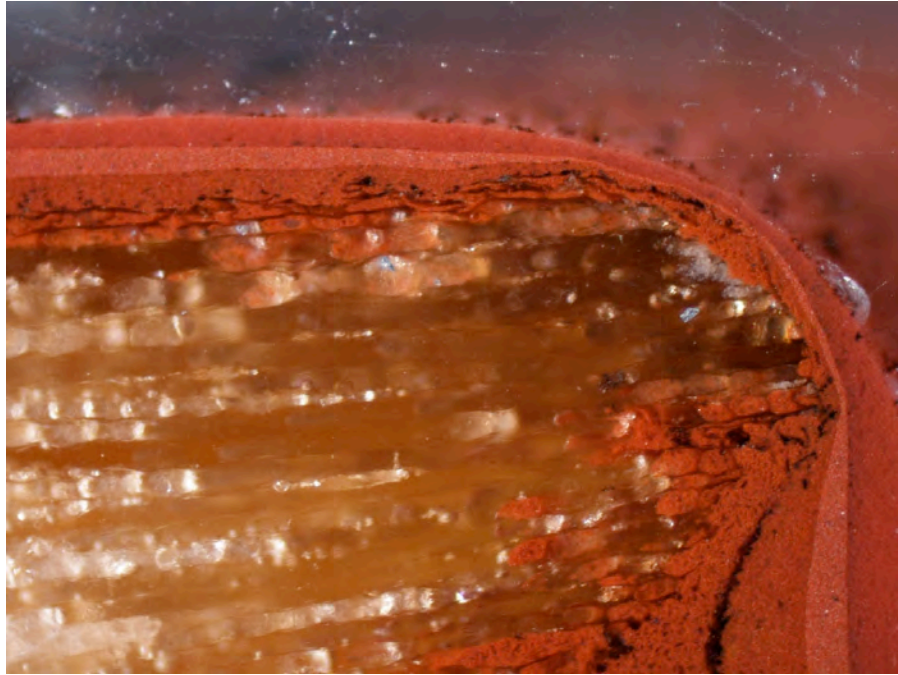


Image 36. Sample CSB.47 was removed from the siding of the enclosed rear porch of the Buck House. (40x, Visible Light)



Image 37. Sample CSB.49 was removed from a protected area of the exterior siding of the Buck House, under the front porch. It contains earlier paint layers, including a yellowish-cream similar to that seen on the Goat Barn. (100x, Visible Light)

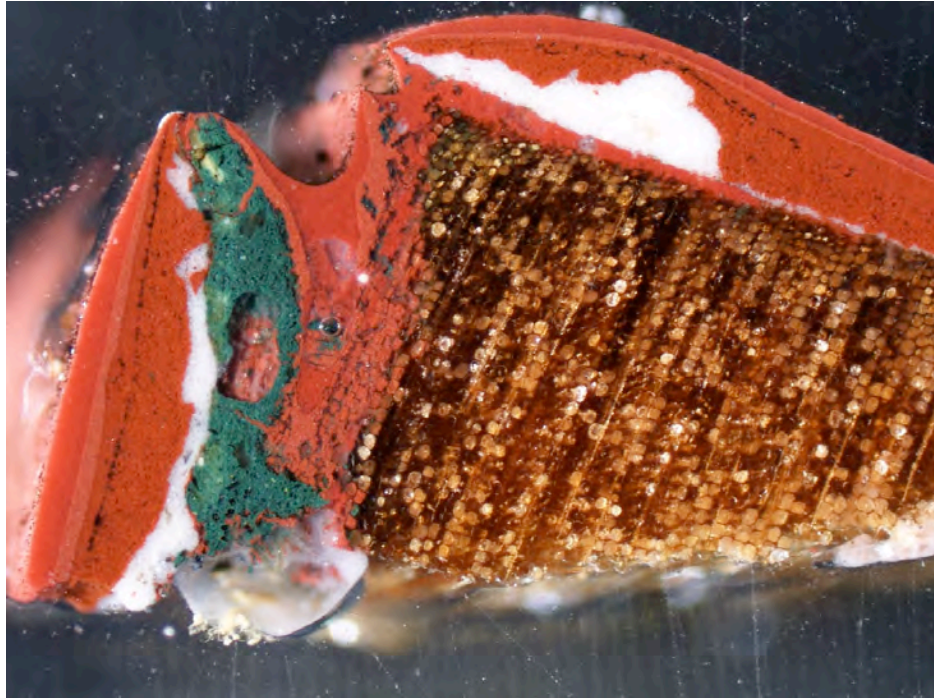


Image 38. Sample CSB.48 was removed from the vertical corner trim of the main portion of the Buck House. Note the early dark green and white paint colors. (40x, Visible Light)

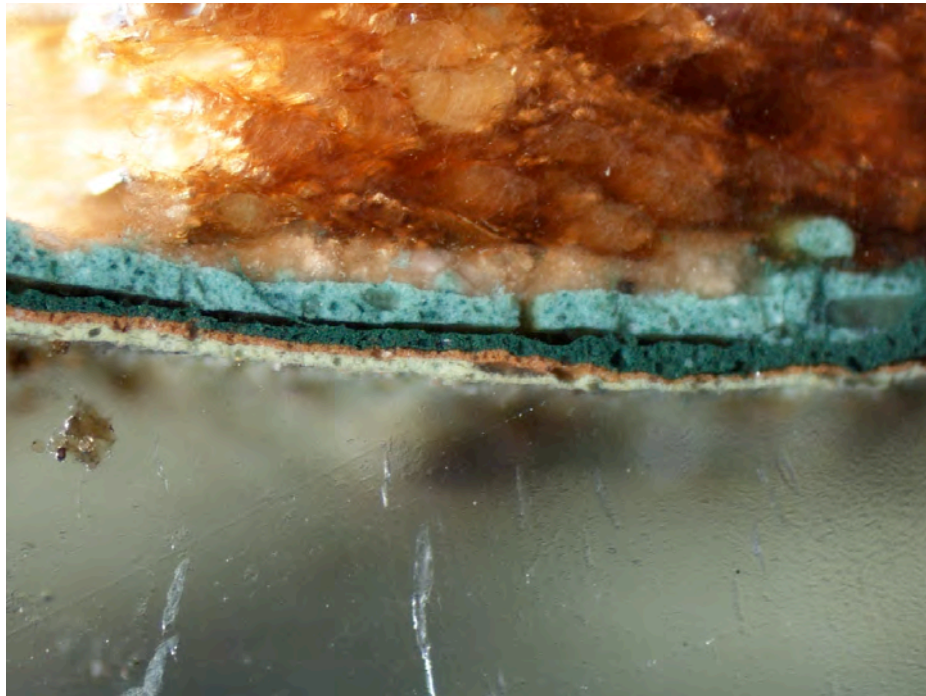


Image 39. Sample CSB.51, removed from a window casing in the south interior room of the Buck House, has four layers of paint, including an original pale blue-green. (100x, Visible Light)

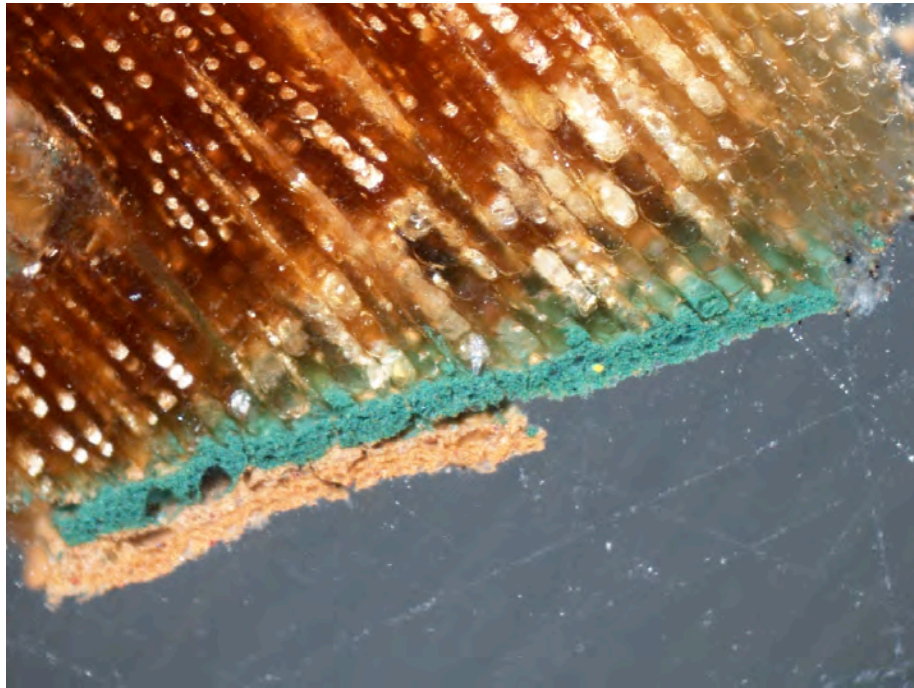


Image 40. Sample CSB.54, removed from a door casing in the north interior room of the Buck House, has only two layers of paint (which are the same as the later layers in Sample CSB.51 above). (100x, Visible Light)

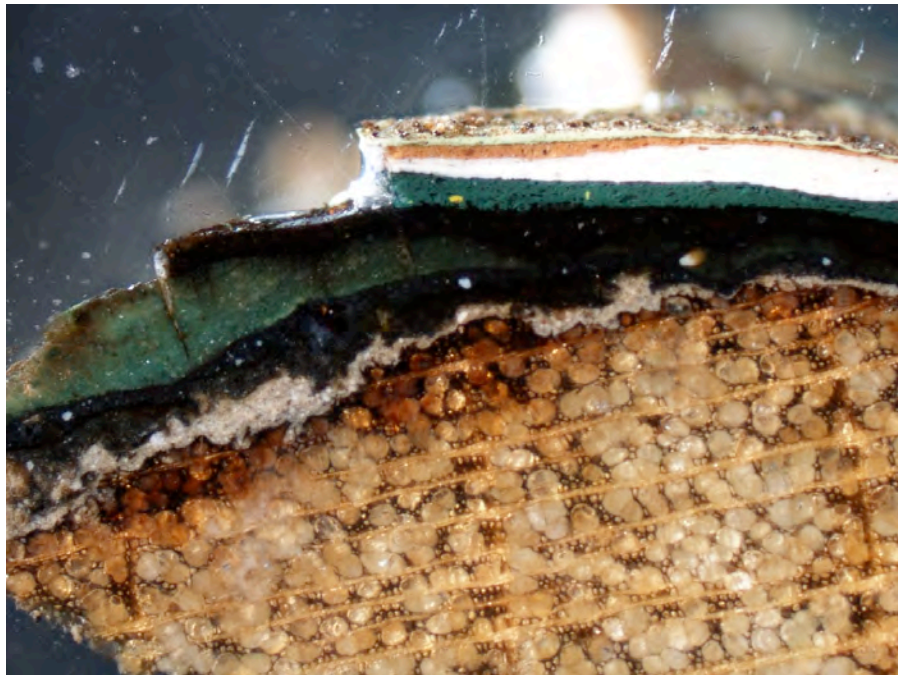


Image 41. Sample CSB.52, was removed from the mantelpiece of the Buck House. It contains an original varnish layer followed by dark grays and dark green, before being painted the same dark green and dark orange found on other trim inside the building. (40x, Visible Light)

4.0 CONCLUSIONS AND RECOMMENDATIONS

Making recommendations for an appropriate paint scheme for the five buildings of the barn complex and the Buck House is relatively straightforward if one assumes a period of interpretation of circa 1950. This period represents the time when the Sandburgs purchased the property and made major alterations to the barn buildings, particularly the Goat Barn. Most of those alterations are still in place and represent the current existing condition of the buildings. Although paint evidence has not always been well preserved on these auxiliary buildings, recommendations can still be made based on the fragmentary evidence that does still exist, as well as historic photographs.

For the Goat Barn and the Horse Barn, the paint scheme applied to these buildings during the initial Sandburg period of occupancy was dark red. The dark red was found on both the siding and the trim.

For the Buck Kid Quarters, based on the current evidence, it is not possible to know what year the building was first painted during the Sandburg period of occupancy, nor the colors employed when it was first painted. Photographic evidence suggests the building was painted by 1952; however, the photograph was taken some distance from the building and it is a black-and-white image, so this evidence is not conclusive. The undated University of Illinois photograph (*Image 27*), which dates to later in the Sandburg's period of ownership, may also show a painted building. The latter photograph also shows a different door than the one depicted in the 1952 photograph (*Image 25*) and the color of the door and trim is a dark color, most likely red. This color is different than the white that is visible on the door trim in the 1952 photograph. Additional research is necessary to determine exactly when the Buck Kid Quarters was painted by the Sandburgs and what colors they used. The 1952 photograph, as well as the University of Illinois photograph, should be further studied (at higher resolution, if possible) to determine if the building was painted at the time the photographs were taken, since both date to the Sandburg period (albeit beyond the 1950 period of interpretation). Additional paint samples could also be removed from protected locations of historic fabric to try to determine the early paint finishes on the building's trim.

For both the Isolation Barn and Corn Crib, there is neither solid photographic or physical evidence for their paint finish circa 1950. However, based on the findings for the other barn complex buildings, a paint scheme of dark red is recommended for these buildings as well.

For the exterior of the Buck House, the same dark red can be applied to the weatherboards and cornice. While there is no way to determine if the earliest red paint layer dates to the NPS era or the Sandburg era, the only other choice would be to paint the Buck House the early pale yellow found on the protected front elevation. This paint color, however, is associated with the Smyth period and to re-instate it on the Buck House seems out of synch with the paint treatment for the rest of the buildings in the barn complex. Unfortunately, not enough information was gained from the

exterior trim sample (removed from the vertical corner piece on the west elevation of the building) to allow a paint color recommendation to be made for the trim. It is possible that the white paint color was applied to the trim when the red paint was applied to the body of the building, but more samples would need to be removed from the building in order to establish this. Additional samples should be removed from exterior window and door casings, and compared to the paint evidence on the corner piece, to try to identify the color of the trim during the red paint campaign. If historic photographs of the buildings are found that date to the Sandburg period, this would also be helpful in determining if the trim was a light (white) or dark color.

Recommendations for Restoration Paint Colors

Please note that any attempt to reproduce this page, including printing from the electronic version of the report, will distort the color of the provided chip. Only the actual color chip or notation should be used for paint replication purposes.

Dark Red

Munsell Color Match: 7.5R 3/4

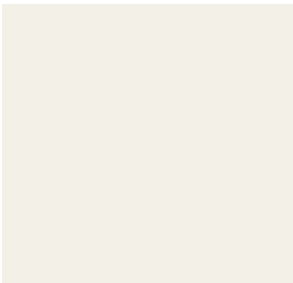
Benjamin Moore Color Match: Beaver Brown 2104-20



White

Munsell Color Match: N 9.5

Benjamin Moore Color Match: OC-45

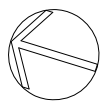
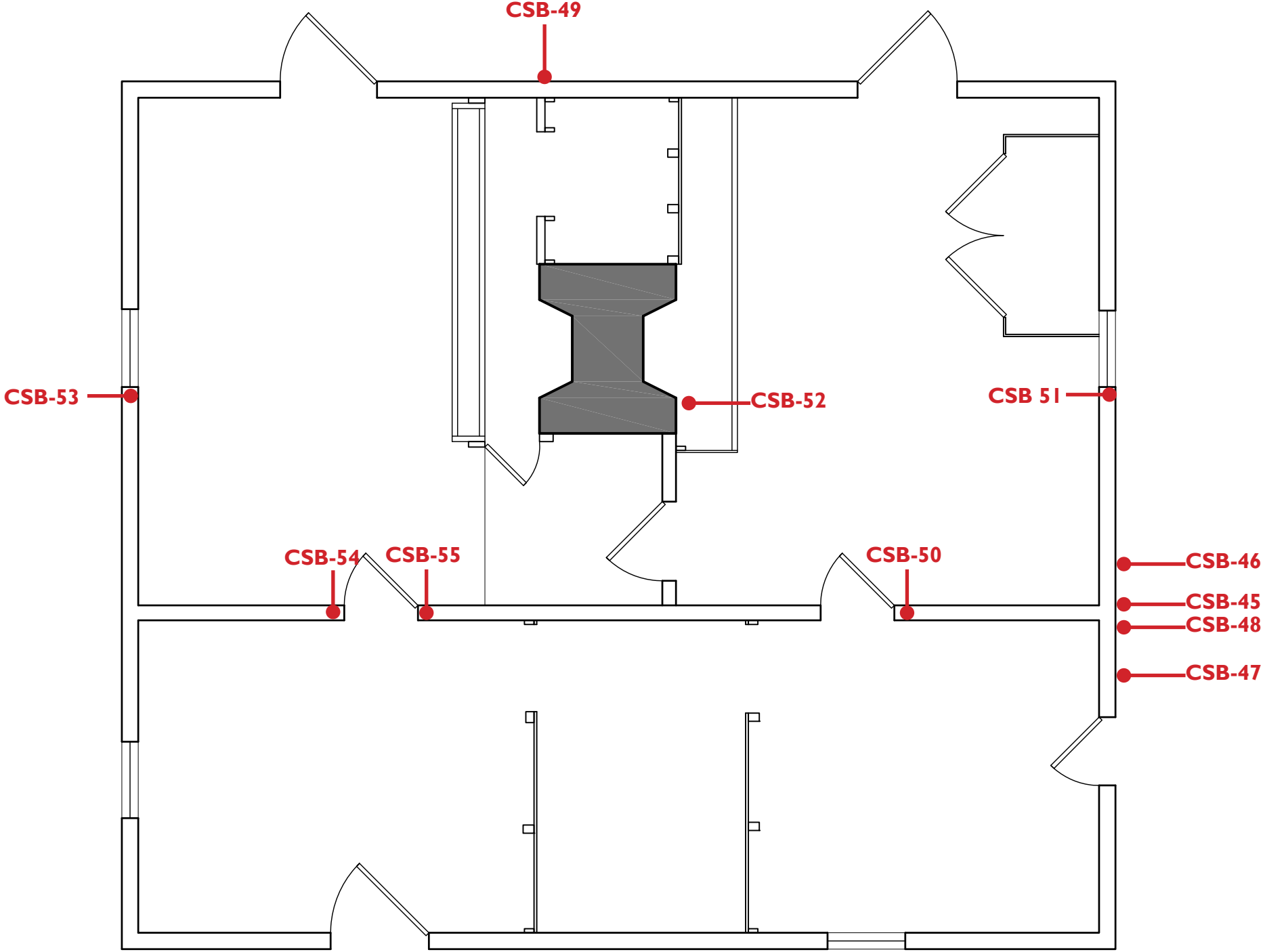


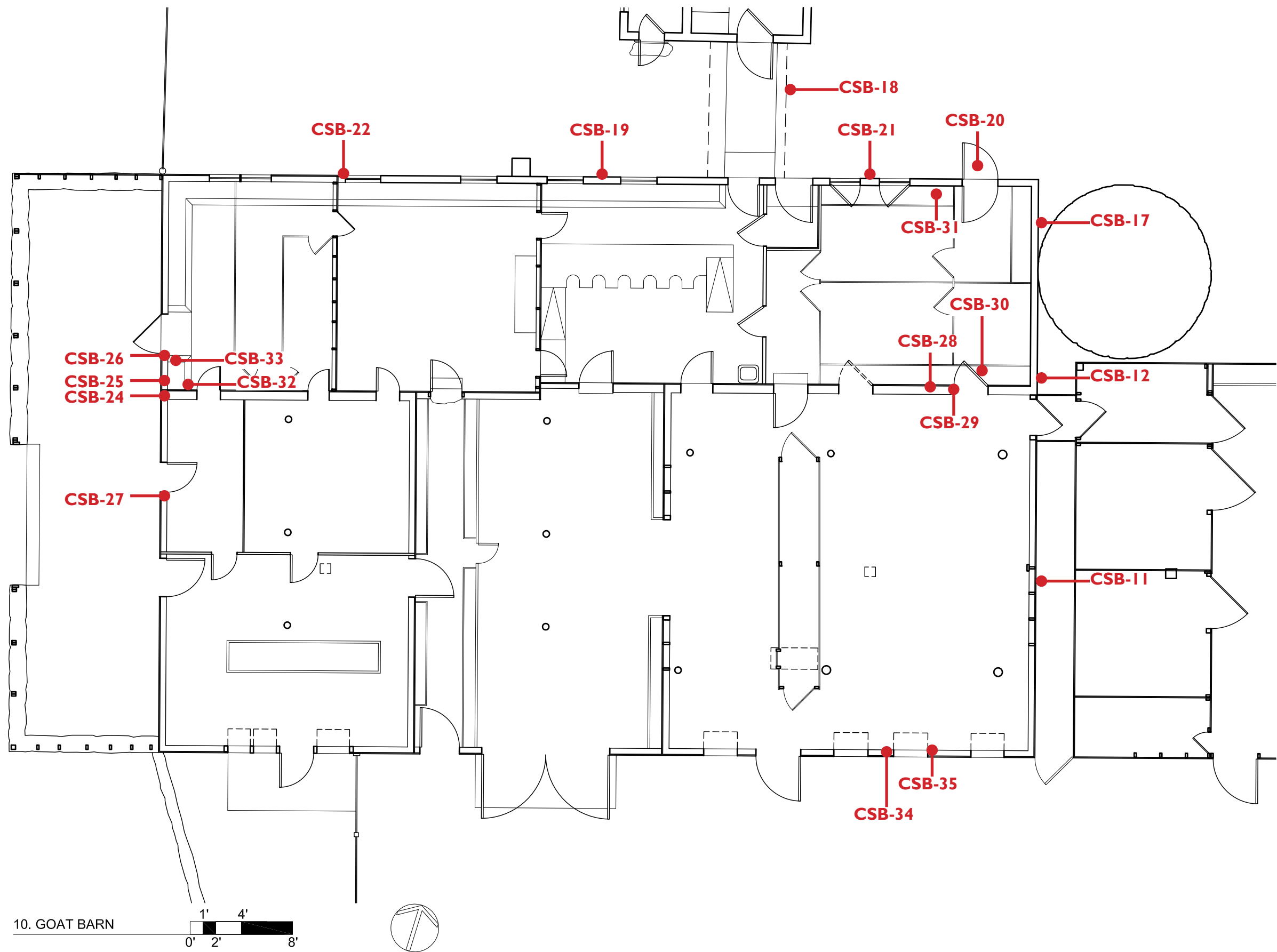
APPENDIX A.
KEY TO SAMPLE LOCATIONS

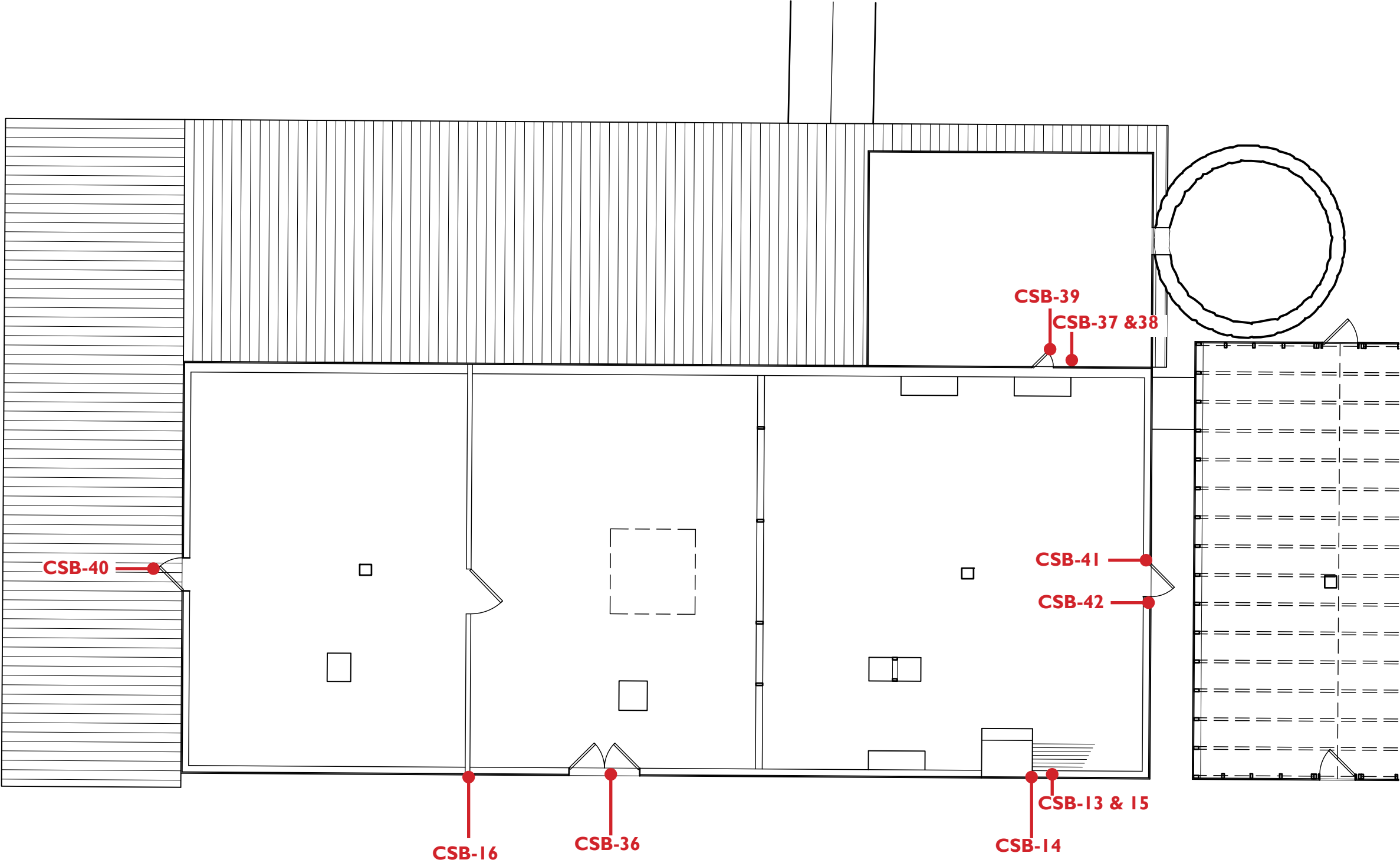
Sample	Location	Description
CSB 1	Corn Crib	At uppermost pice of lath.
CSB 2	Corn Crib	Weathered slat above door.
CSB 3	Buck Kid Quarters 1st Floor	Clapboard on gable under roof overhang. (Park Service reconstruction).
CSB 4	Buck Kid Quarters 1st Floor	Plank between joist ends. -Image 494
CSB 5	Buck Kid Quarters 1st Floor	First clapboard above board and batten.
CSB 6	Buck Kid Quarters 1st Floor	Diagonal Brace (probably exposed prior to clapboard installation).
CSB 7	Horse Barn 1st Floor	2nd Clapboard below roof sheathing.
CSB 8	Horse Barn 1st Floor	Clapboard under roof sheathing.
CSB 9	Horse Barn 1st Floor	Large split wood sample.
CSB 10	Horse Barn 1st Floor	Door frame.
CSB 11	Goat Barn 1st Floor	Clapboard 6' above ground. (Should be original part of barn.)
CSB 12	Goat Barn 1st Floor	Siding on addition.
CSB 13	Goat Barn 2nd Floor	2nd clapboard below roof sheathing.
CSB 14	Goat Barn 2nd Floor	Door jamb.
CSB 15	Goat Barn 2nd Floor	Rafter end (5th rafter westward of east elevation)
CSB 16	Goat Barn 2nd Floor	2nd clapboard below roof sheathing.
CSB 17	Goat Barn 1st Floor	Sample taken in hard-to-reach area next to silo that only has earlier paint.
CSB 18	Goat Barn 1st Floor	Underside of roof sheathing.
CSB 19	Goat Barn 1st Floor	Siding behind old phone connection box.
CSB 20	Goat Barn 1st Floor	3rd clapboard below roof sheathing (above door).
CSB 21	Goat Barn 1st Floor	Window casing at lintel.
CSB 22	Goat Barn 1st Floor	Window casing at jamb.
CSB 23	Goat Barn 1st Floor	Top clapboard below roof sheathing. Also, 3rd clapboard below sheathing.
CSB 24	Goat Barn 1st Floor	(South of seam) clapboard approx 6' above ground.

CSB 25	Goat Barn 1st Floor	(North of seam) claboard approx 6' above ground.
CSB 26	Goat Barn 1st Floor	Door trim at jamb, south side of opening.
CSB 27	Goat Barn 1st Floor	Door trim at jamb south side of opening.
CSB 28	Goat Barn 1st Floor	Clapboard west of window jamb.
CSB 29	Goat Barn 1st Floor	Window casing at jamb.
CSB 30	Goat Barn 1st Floor	On shutter. (Shutter red on north side, whitewash(?) on south side).
CSB 31	Goat Barn 1st Floor	Clapboard east of window.
CSB 32	Goat Barn 1st Floor	North wall of original building.
CSB 33	Goat Barn 1st Floor	West end wall of north shed addition.
CSB 34	Goat Barn 1st Floor	Window trim, west side of window, jamb trim.
CSB 35	Goat Barn 1st Floor	Window trim, east jamb.
CSB 36	Goat Barn 2nd Floor	Clapboards in gable of dormer, above door opening.
CSB 37	Goat Barn 2nd Floor	Clapboards.
CSB 38	Goat Barn 2nd Floor	East jamb of window opening, trim.
CSB 39	Goat Barn 2nd Floor	North face of shutter.
CSB 40	Goat Barn 2nd Floor	Edge of shutter
CSB 41	Goat Barn 2nd Floor	Exterior of shutter.
CSB 42	Goat Barn 2nd Floor	Edge of jamb, south side of opening.
CSB 43	Isolation Quarters	Clapboard, east of window.
CSB 44	Isolation Quarters	Clapboard below eaves.
CSB 45	Buck House	West return (miter) of canted crown molding under pent cornice of gable (main Building).
CSB 46	Buck House	Clapboard, 3rd down, below pent cornice (main building).
CSB 47	Buck House	Clapboard below shed roof (enclosed porch).
CSB 48	Buck House	Vertical corner trim of main building, approx 10" below pent cornice.
CSB 49	Buck House	Clapboard approx. 3.5' above ground.
CSB 50	Buck House	Trim on south side of opening.
CSB 51	Buck House	Trim on west side of opening.
CSB 52	Buck House	Mantle (wood).

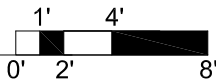
CSB 53	Buck House	Trim at west jamb.
CSB 54	Buck House	Salvaged door hanging on wall above opening.
CSB 55	Buck House	Trim at jamb, south side of opening.

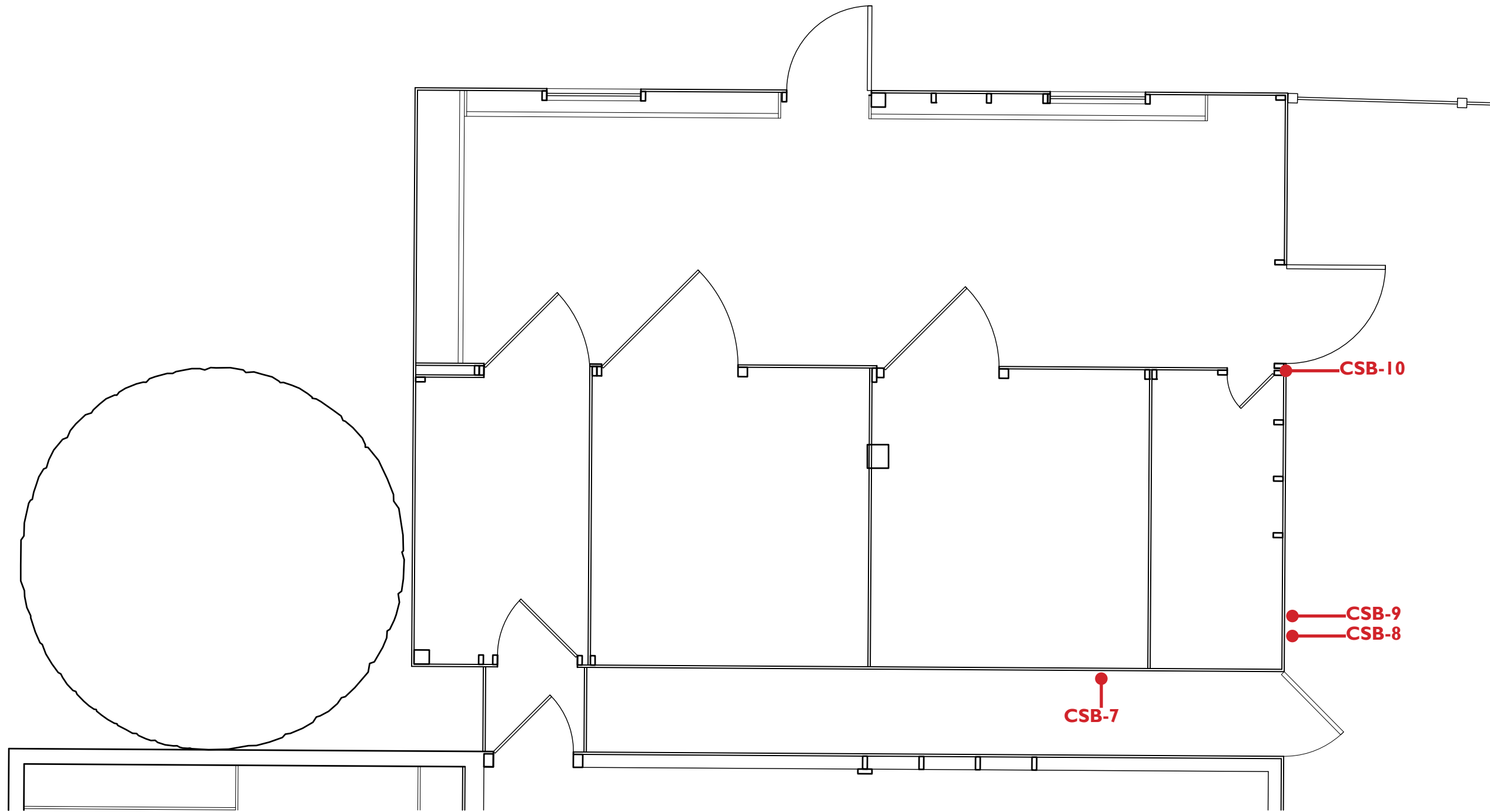






10. GOAT BARN SECOND FLOOR



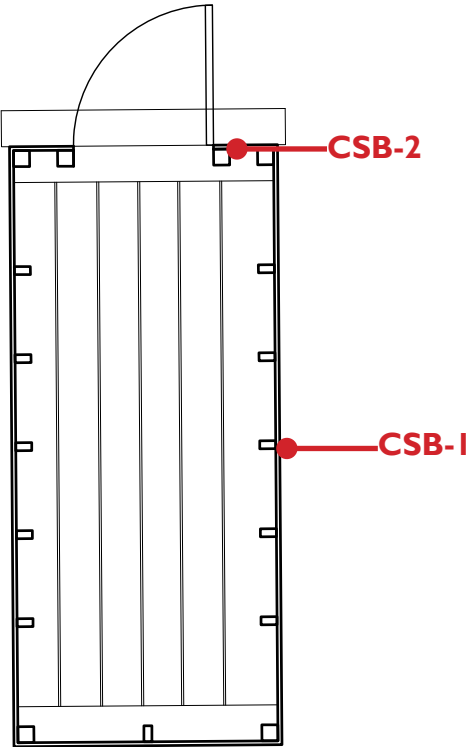
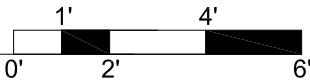


XX. SILO
0' 1' 2' 4' 6'

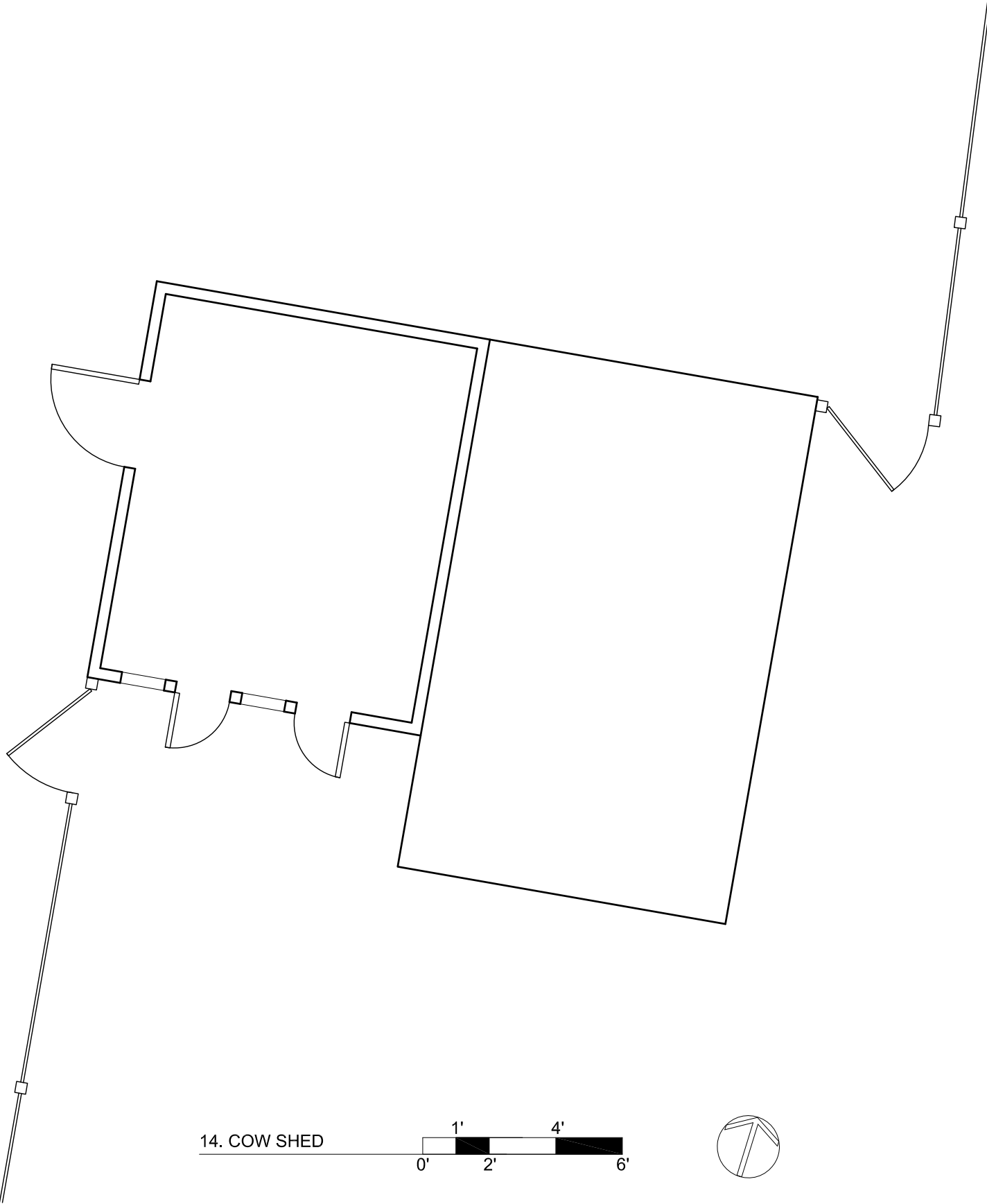
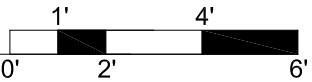


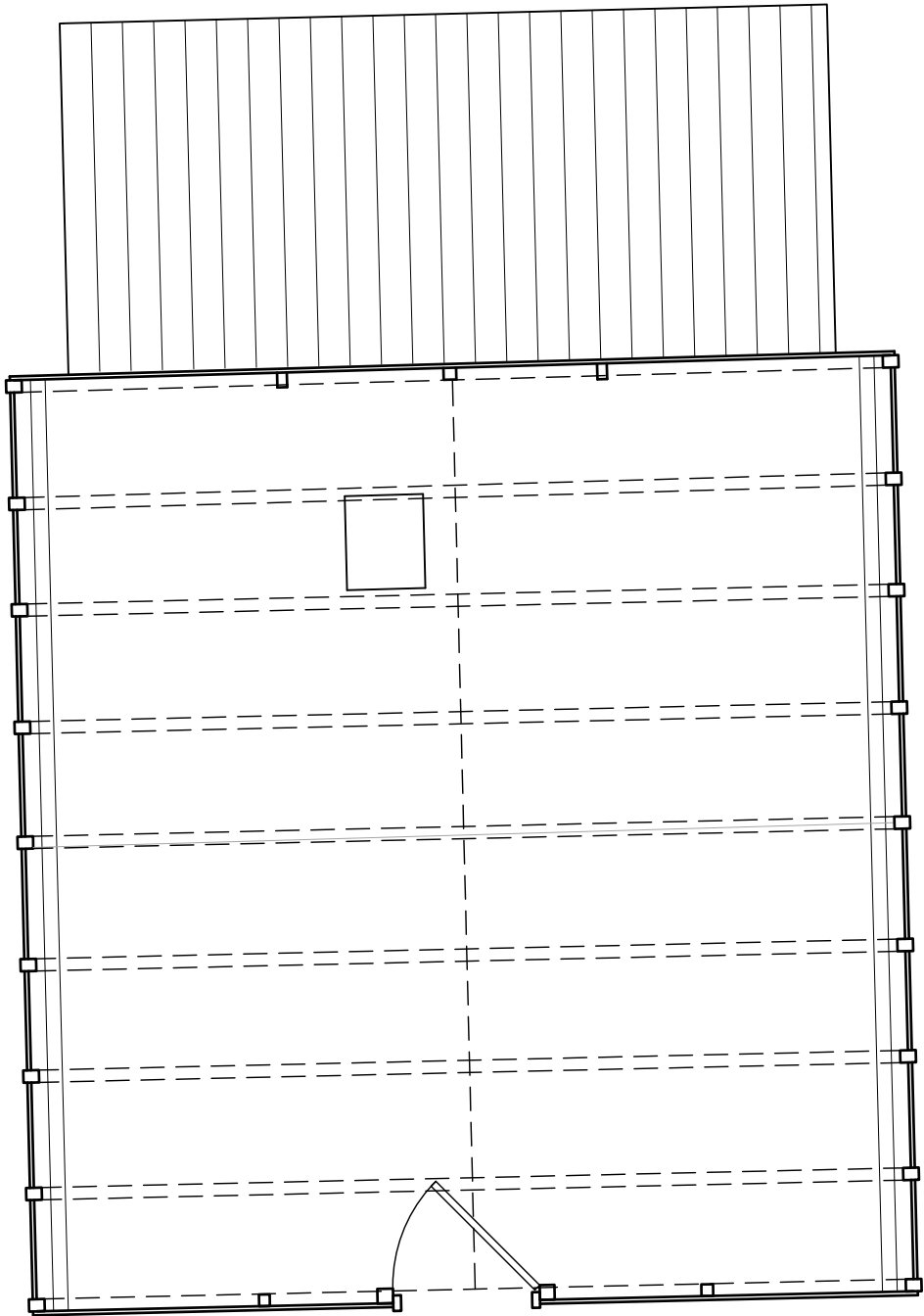
12. HORSE BARN
0' 1' 2' 4' 6'

09. CORN CRIB

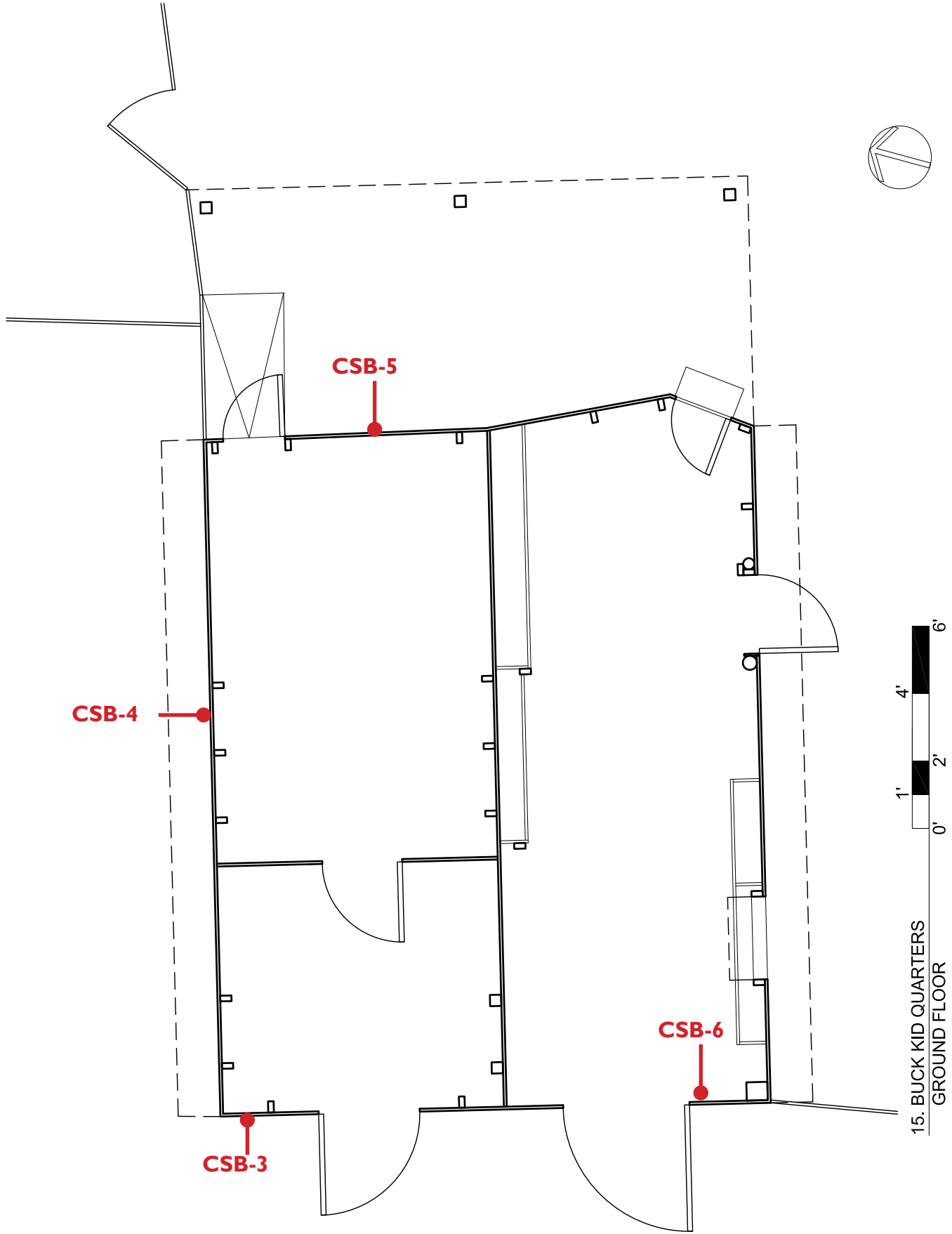
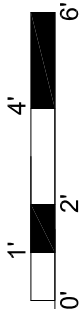


14. COW SHED

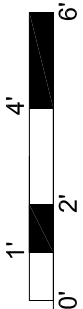


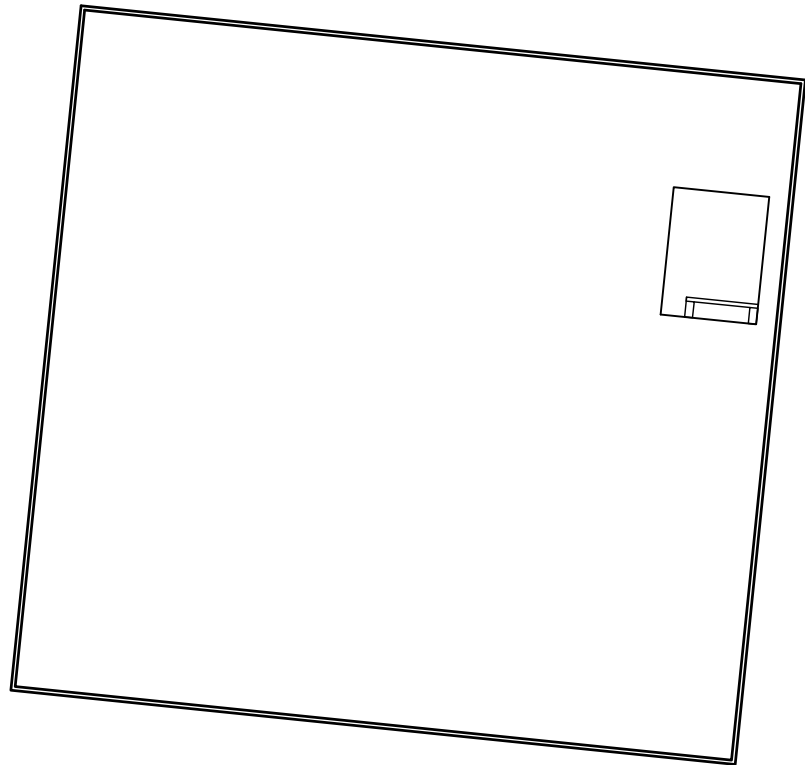


15. BUCK KID QUARTERS
SECOND FLOOR

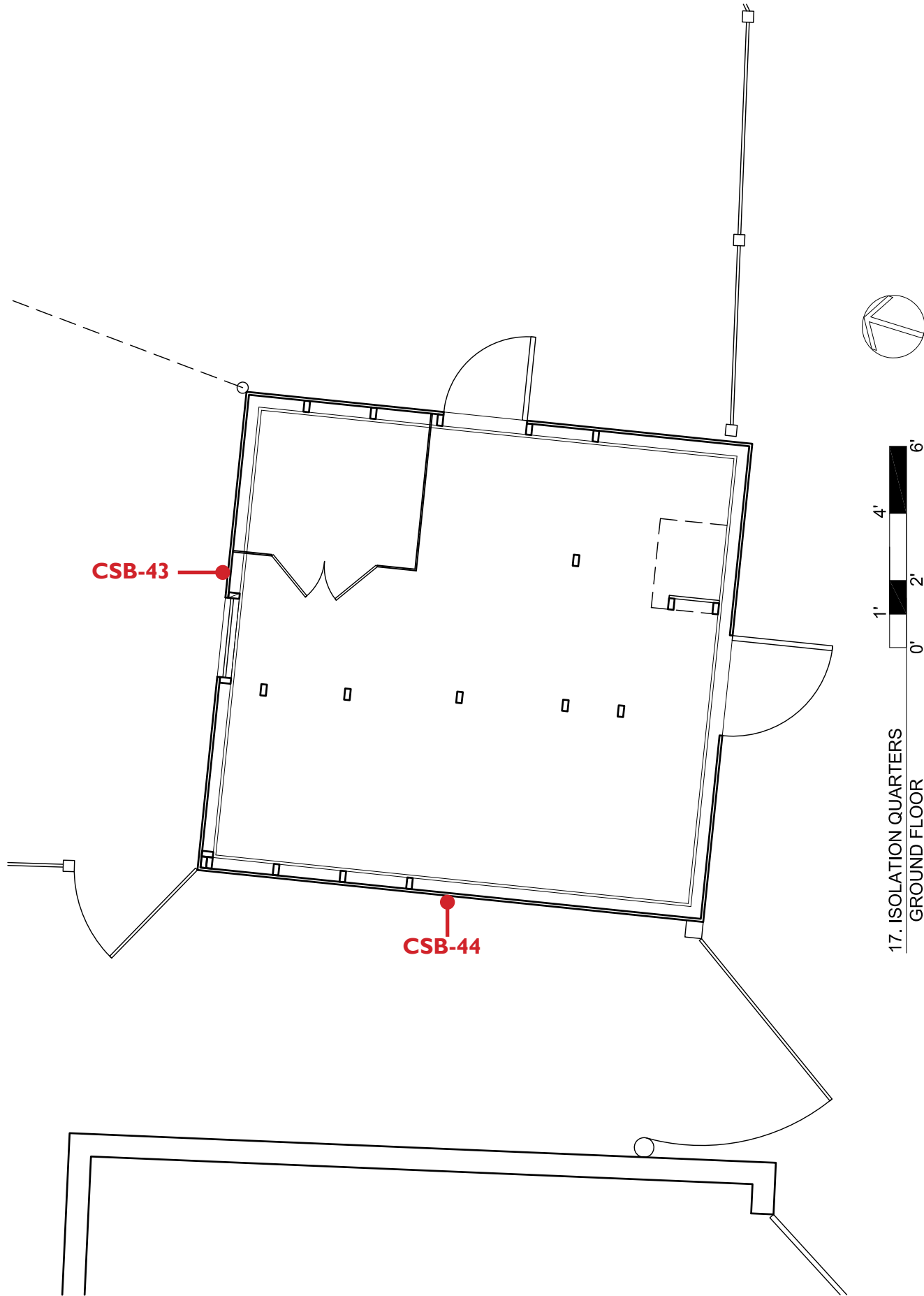


15. BUCK KID QUARTERS
GROUND FLOOR





17. ISOLATION QUARTERS
SECOND FLOOR

A scale bar for the second floor plan. It is a horizontal line with vertical tick marks at 0', 2', 4', and 6'. The text '0'', '2'', '4'', and '6'' is placed below the tick marks.

17. ISOLATION QUARTERS
GROUND FLOOR

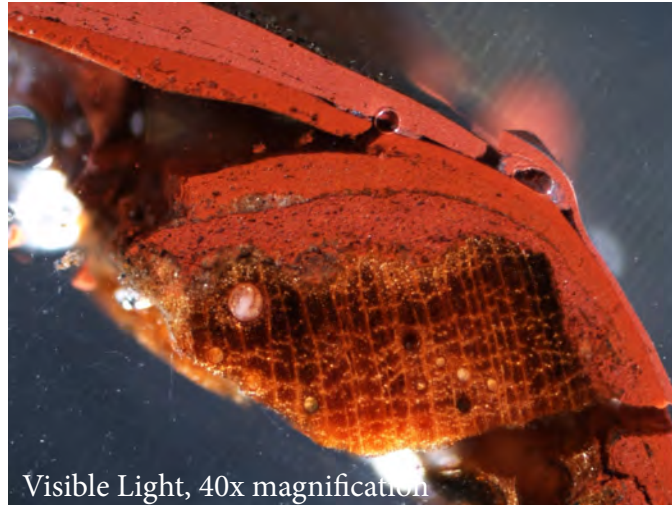
A scale bar for the ground floor plan. It is a horizontal line with vertical tick marks at 0', 2', 4', and 6'. The text '0'', '2'', '4'', and '6'' is placed below the tick marks.

APPENDIX B.
SAMPLE STRATIGRAPHIES AND
PHOTOMICROGRAPHS

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB I	LOCATION: Corn Crib
DESCRIPTION: At uppermost pice of lath.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Uneven surface
1	Red	
2	Red	
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

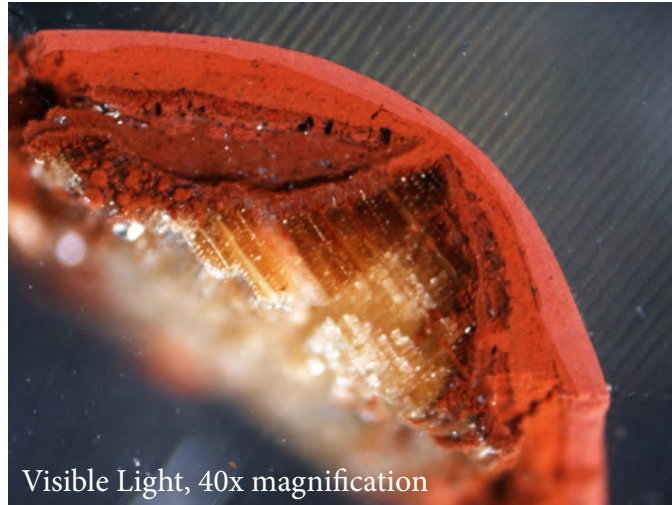


SAMPLE: CSB 2	LOCATION: Corn Crib
DESCRIPTION: Weathered slat above door.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Uneven surface
1	Red	
2	Red	
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



SAMPLE: CSB 3	LOCATION: Buck Kid Quarters 1st Floor
DESCRIPTION: Clapboard on gable under roof overhang. (Park Service reconstruction)	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Uneven Surface
1	Red	
2	Red	
3	Red	
4	Red	
5	Red	
6	Red	
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



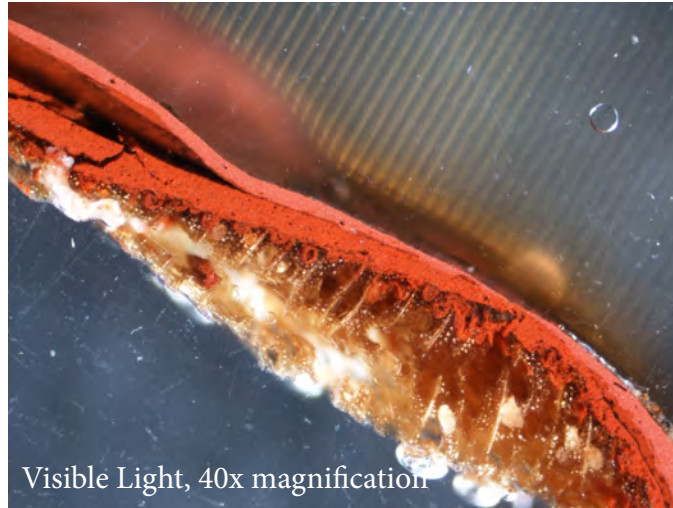
SAMPLE: CSB 4	LOCATION: Buck Kid Quarters 1st Floor
DESCRIPTION: Plank between joist ends.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Uneven/ stripped
1	Red	
2	Red	
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 5	LOCATION: Buck Kid Quarters 1st Floor
DESCRIPTION: First clapboard above board and batten.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Uneven
1	Red	
2	Red	
3	Red	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

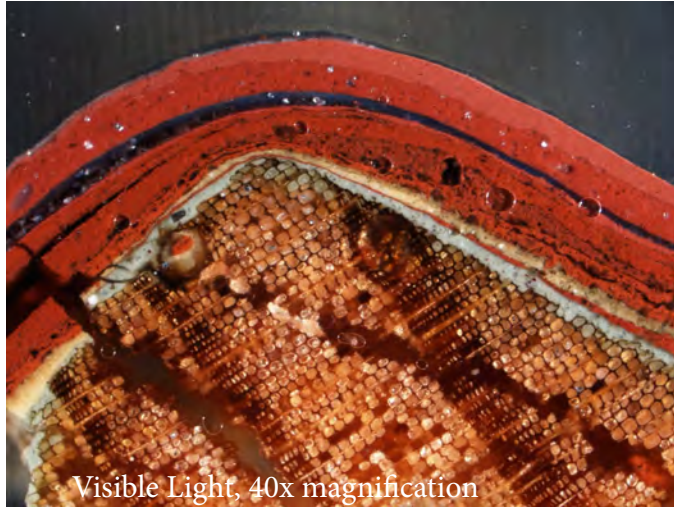


SAMPLE: CSB 6	LOCATION: Buck Kid Quarters 1st Floor
DESCRIPTION: Diagonal Brace (probably exposed prior to clapboard installation)	

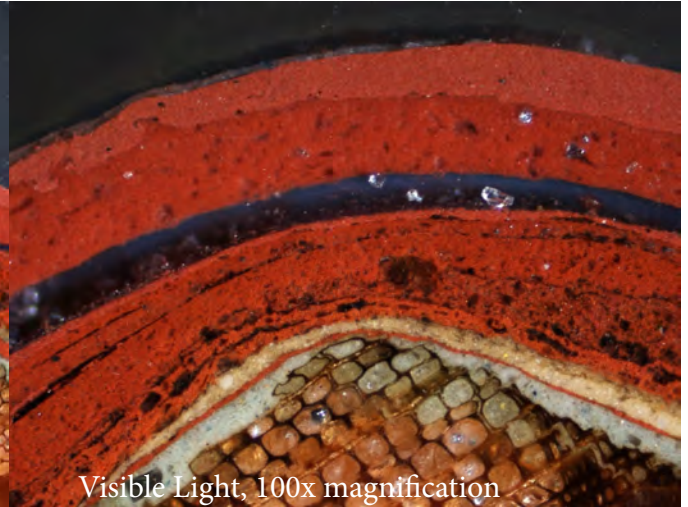
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White (limewash)	
2	White (limewash)	
3	White (limewash)	
4	Red-Orange	
5	White (limewash)	
6	White (limewash)	
7	White (limewash)	
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



Visible Light, 100x magnification

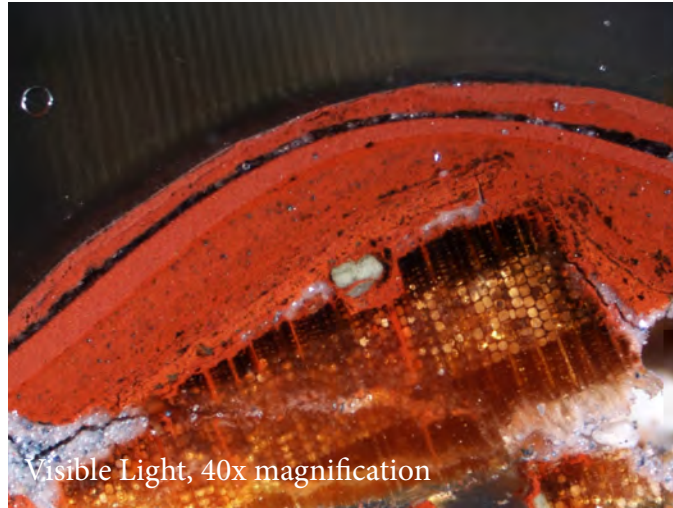
SAMPLE: CSB 7	LOCATION: Horse Barn 1st Floor
DESCRIPTION: 2nd Clapboard below roof sheathing.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Pale Blue- Green	
2	Pale Yellow	
3	Dark Brown	Discoloration?
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10	Red	
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 8	LOCATION: Horse Barn 1st Floor
DESCRIPTION: Clapboard under roof sheathing.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Pale Green	Traces
2	Red	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10	Red	
11	Red	
12	Red	
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

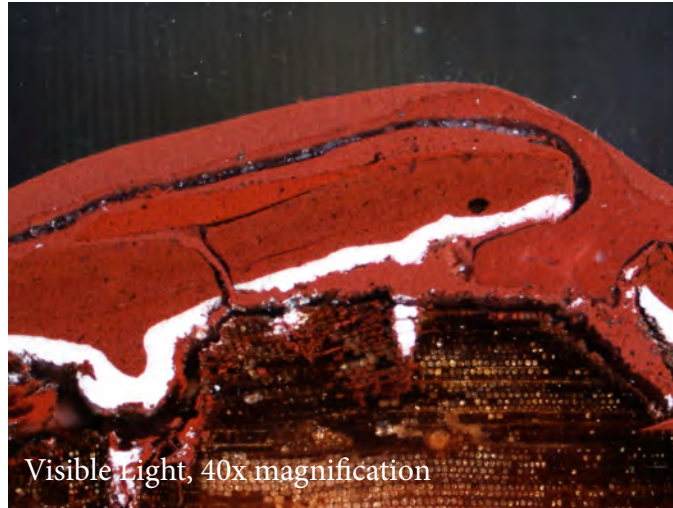


SAMPLE: CSB 9	LOCATION: Horse Barn 1st Floor
DESCRIPTION: Large split wood sample.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
I	Red	
2	Pale Green	Traces
3	Pale Yellow	Traces
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10	Red	
11	Red	
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



SAMPLE: CSB 10	LOCATION: Horse Barn 1st Floor
DESCRIPTION: Door frame.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	White	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

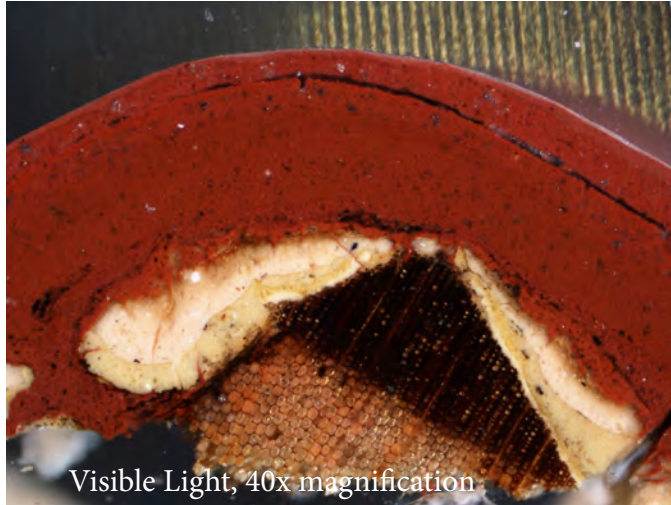


SAMPLE: CSB 11	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Clapboard 6' above ground. (Should be original part of barn.)	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	Leak Down
2	Pale Yellow / Cream	
3	Pale Yellow	
4	Red	
5	Red	
6	Red	
7	Red	
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



Visible Light, 100x magnification

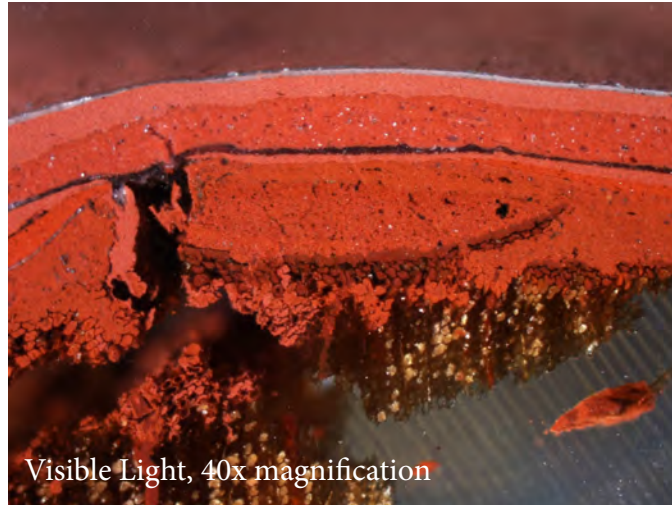
SAMPLE: CSB 13	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: 2nd clapboard below roof sheathing	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Pale Yellow-Brown	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9		
10		
11		
12		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

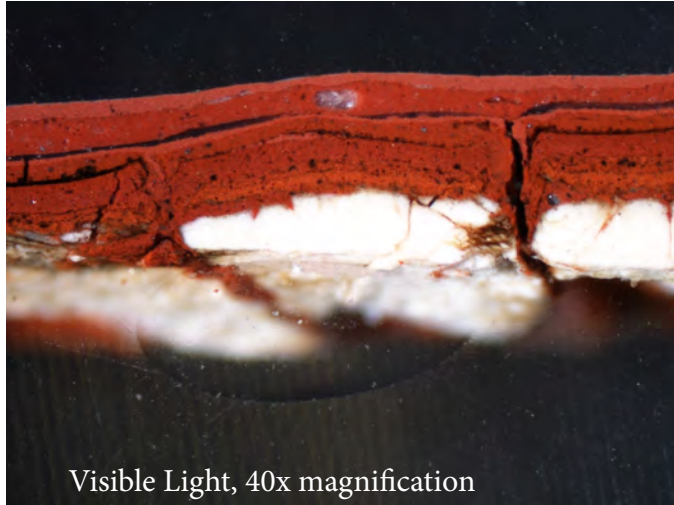


SAMPLE: CSB 14	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: Door jamb.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Weathered
1	Red (Dark)	
2	Red	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



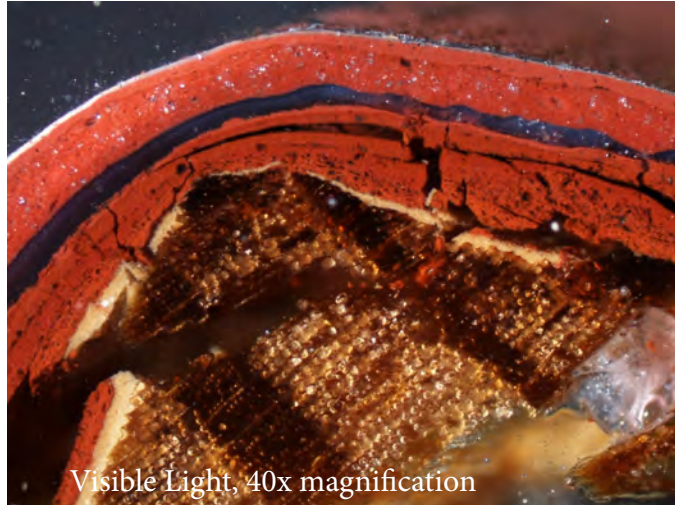
Visible Light, 100x magnification

SAMPLE: CSB I 5	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: Rafter end (5th rafter westward of east elevation)	

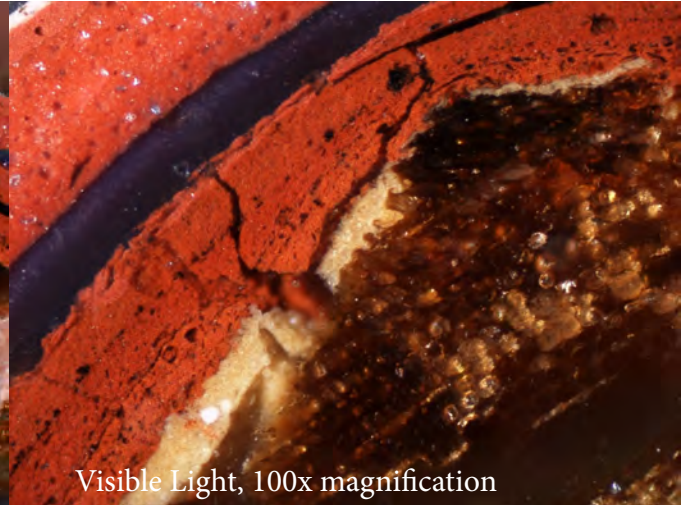
LAYER	REFLECTED LIGHT COLOR	NOTES
None		
1	White	
2	Red	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



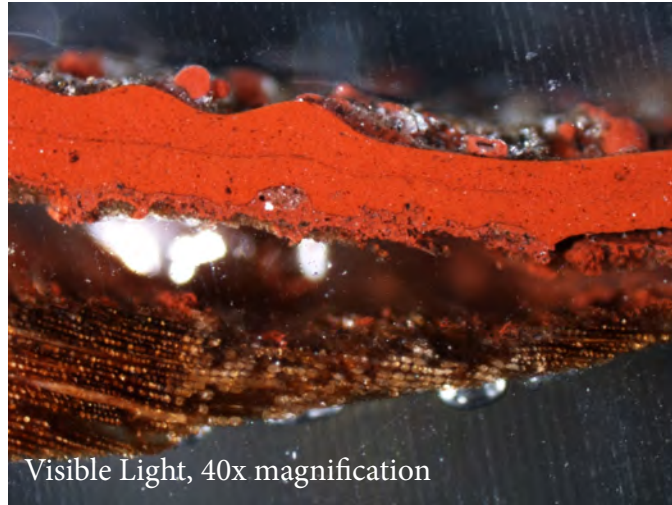
Visible Light, 100x magnification

SAMPLE: CSB 16	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: Sample taken in hard-to-reach area next to silo that only has earlier paint	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Dark Cream/ Light Brown	
2	Red	
3	Red	
4	Red	
5	Red	
6	Red	
7		
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

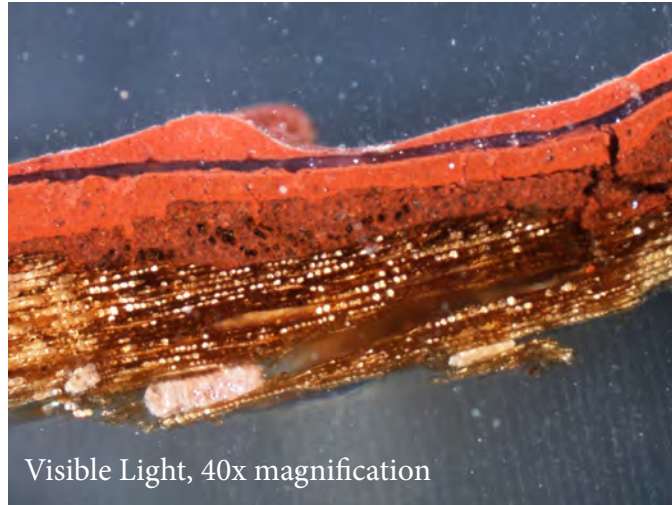


SAMPLE: CSB 17	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Sample taken in hard-to-reach area next to silo that only has earlier paint	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red Brown (medium)	
2	Red	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



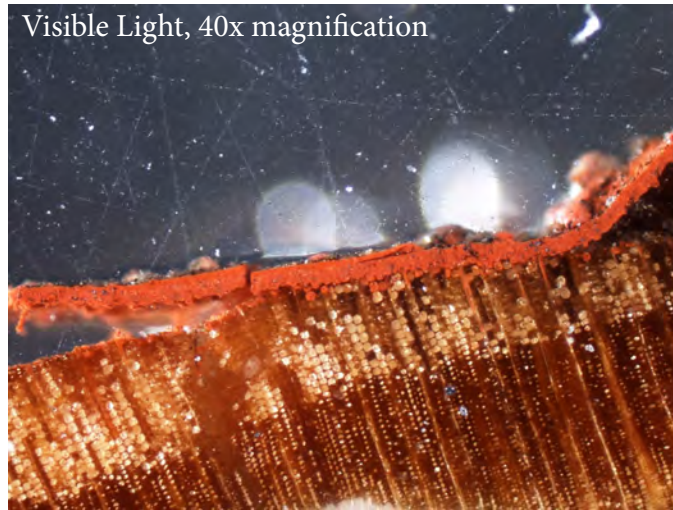
SAMPLE: CSB 18	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Underside of roof sheathing.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Reddish Brown (medium)	
2	Red	
3	Red	
4		
5		
6		
7		
8		
9		
10		
11		
12		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 19	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Siding behind old phone connection box.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

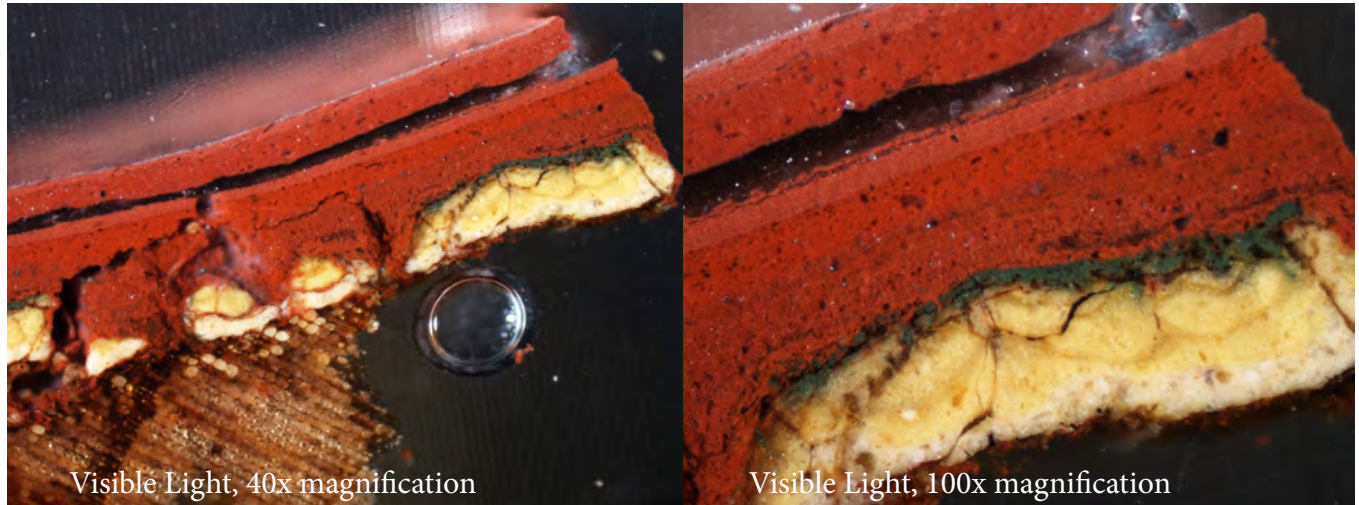


SAMPLE: CSB 20	LOCATION: Goat Barn 1st Floor
DESCRIPTION: 3rd clapboard below roof sheathing (above door).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red - Brown	
2	Dark Red - Brown	
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

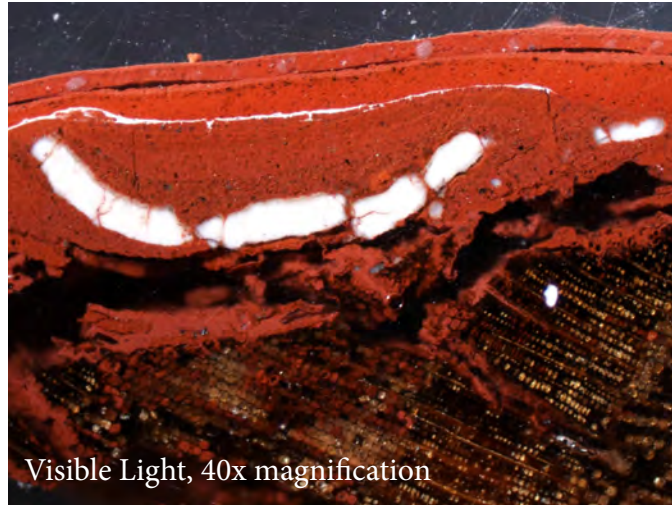


SAMPLE: CSB 2I	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Window casing at lintel.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Pale Yellow	
3	Pale Yellow	
4	Green (Kelly)	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10	Red	
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

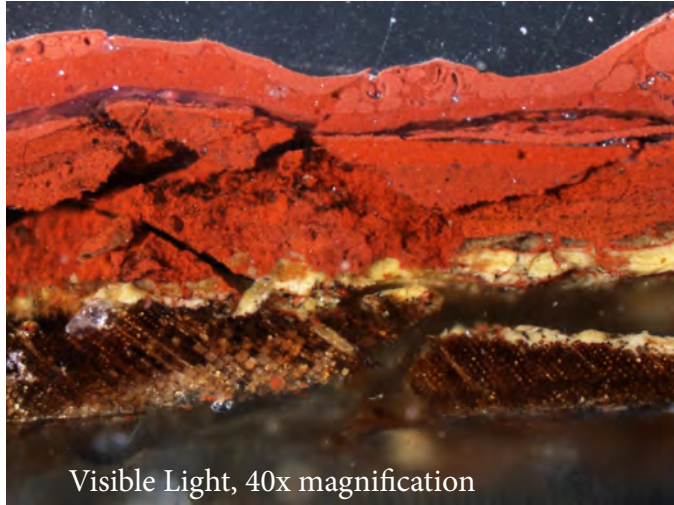


SAMPLE: CSB 22	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Window casing at jamb.	

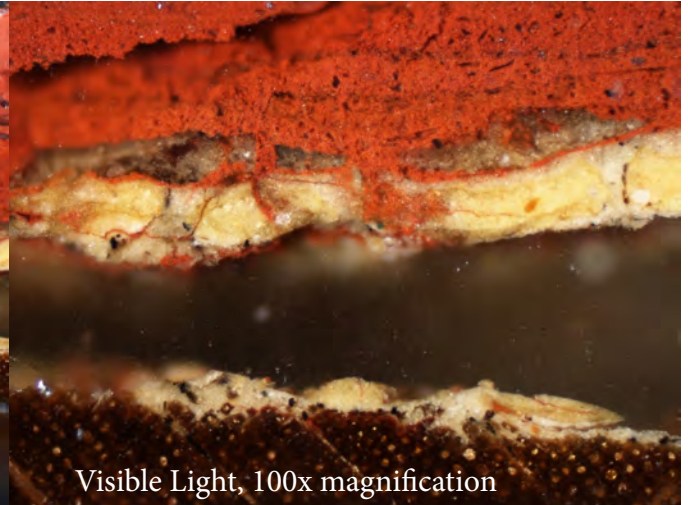
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	Leak Down
2	Red	Leak Down
3	White	
4	Red	
5	Red	
6	Red	
7	Red	
8	Red	
9	White	
10	Red	
11	Red	
12	Red	
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



Visible Light, 100x magnification

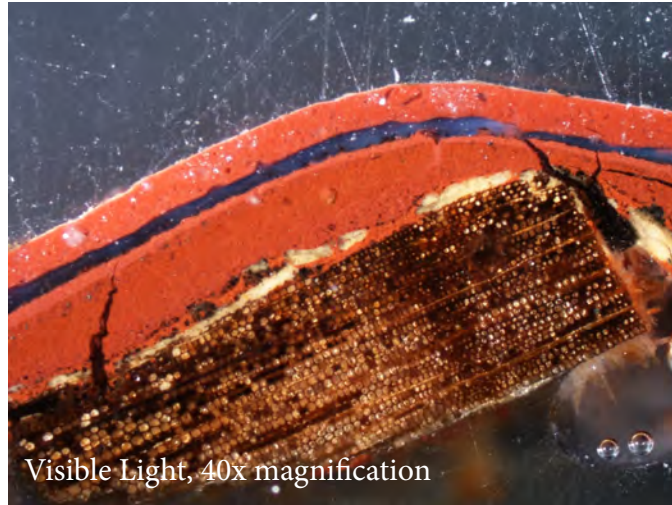
SAMPLE: CSB 23	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Top clapboard below roof sheathing. Also, 3rd clapboard below sheathing.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Pale Yellow	
3	Cream	
4	Dark Brown	
5	Red	
6	Red	
7	Red	
8	Red	
9	Red	
10	Red	
11	Red	
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

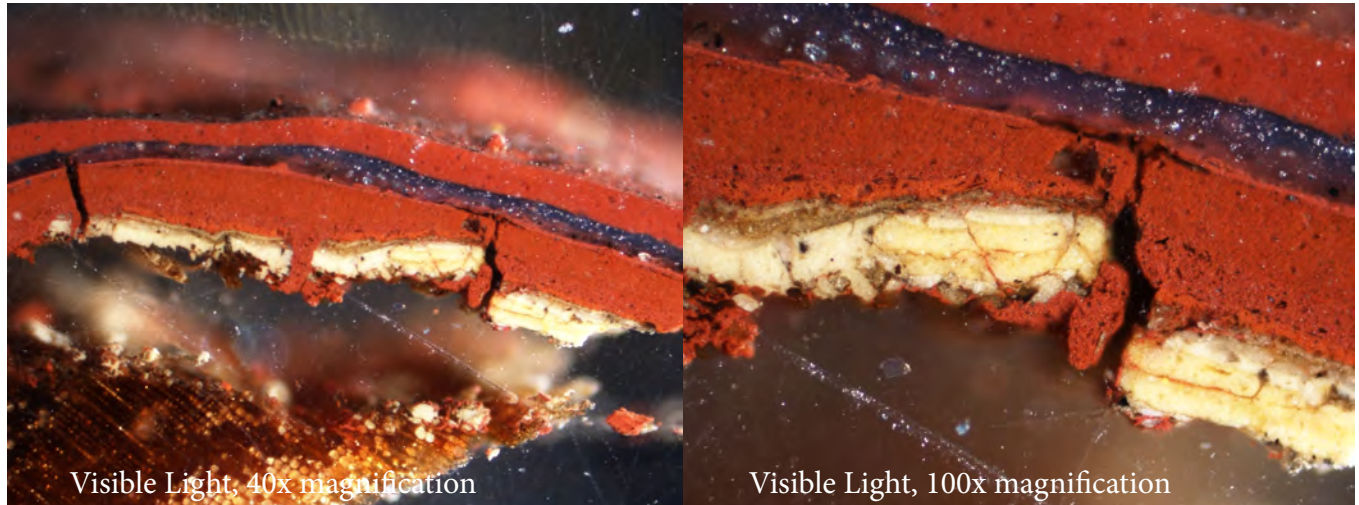


SAMPLE: CSB 24	LOCATION: Goat Barn 1st Floor
DESCRIPTION: (South of seam) clapboard approx 6' above ground.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	Disrupted
2	Red	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

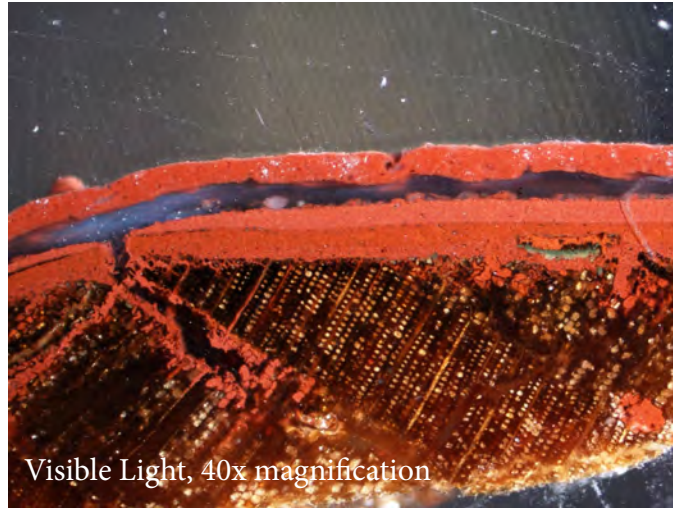


SAMPLE: CSB 25	LOCATION: Goat Barn 1st Floor
DESCRIPTION: (North of seam) claboard approx 6' above ground.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

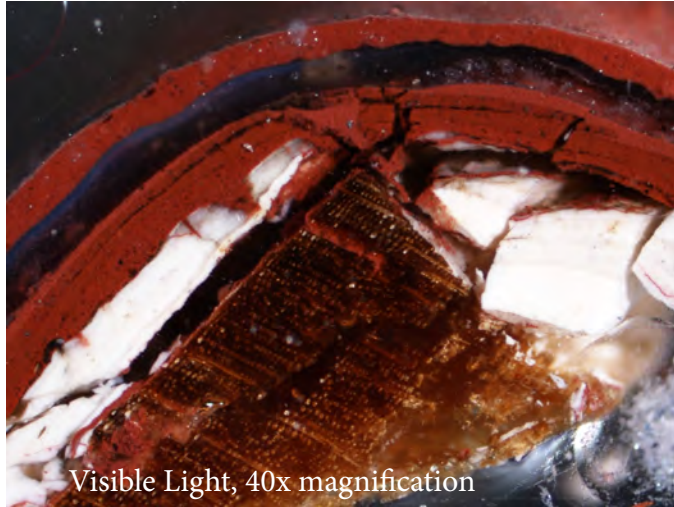


SAMPLE: CSB 26	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Door trim at jamb, south side of opening	

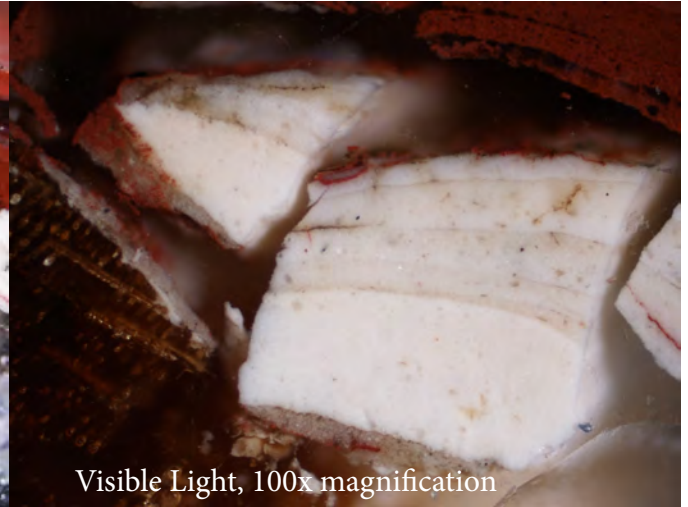
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Kelly Green	Fragments
3	Red	
4	Red	
5	Red	
6	Red	
7	Red	
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



Visible Light, 100x magnification

SAMPLE: CSB 27	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Door trim at jamb south side of opening.	

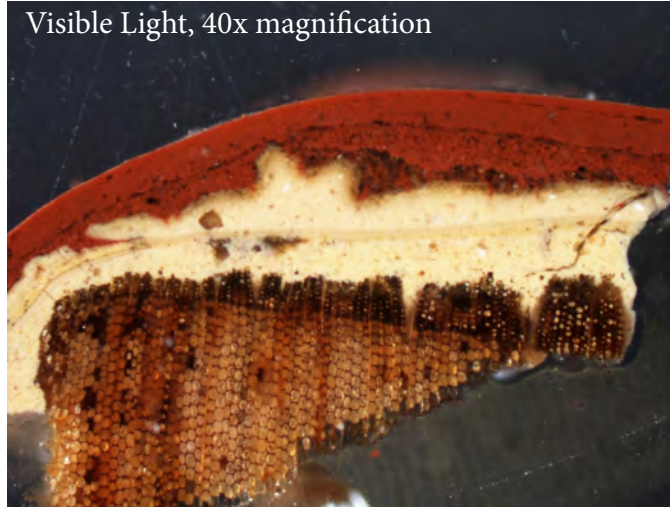
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Light Gray/ White	Limewash?
2	White	
3	White	
4	White	
5	White	
6	White	
7	White	
8	Red	
9	Red	
10	Red	
11	Red	
12	Red	

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

Visible Light, 40x magnification



SAMPLE: CSB 28	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Clapboard west of window jamb.	

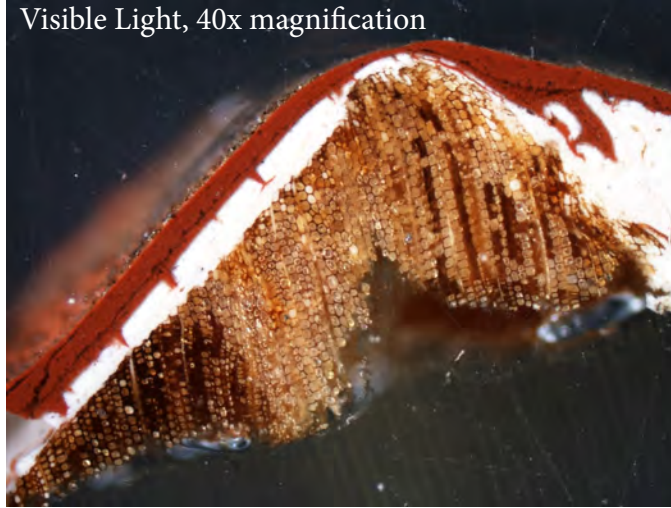
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Pale Yellow	
3	Cream	
4	Light Brown	Discoloration?
5	Red	
6	Red	
7	Red	
8	Red	
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

Visible Light, 40x magnification



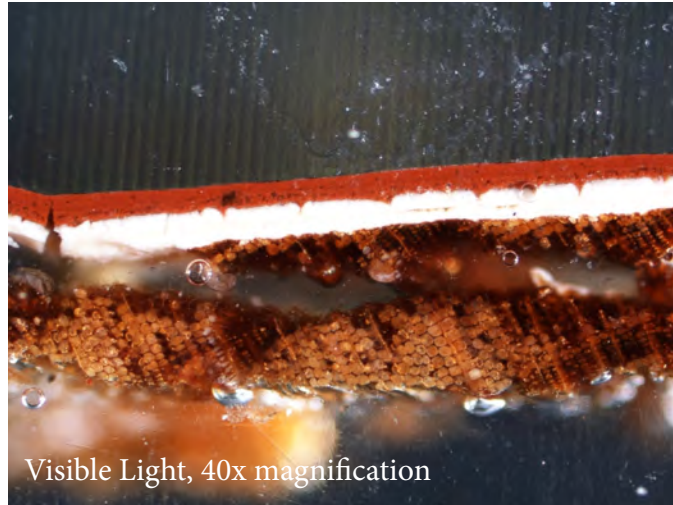
SAMPLE: CSB 29	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Window casing at jamb.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	
2	White	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 30	LOCATION: Goat Barn 1st Floor
DESCRIPTION: On shutter. (Shutter red on north side, whitewash(?) on south side).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	
2	White	
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



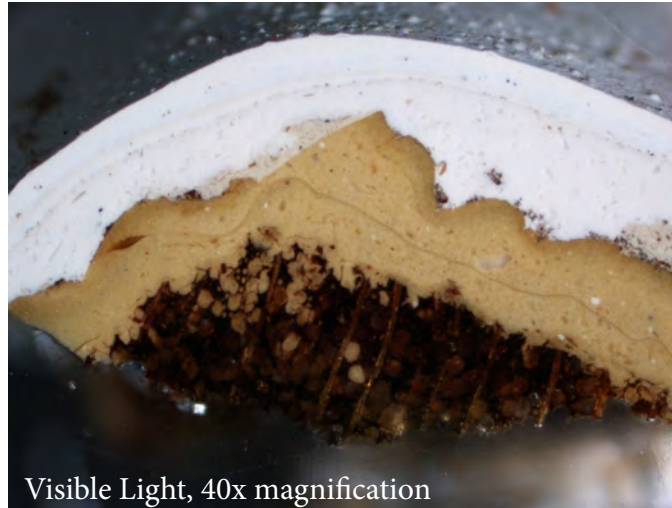
SAMPLE: CSB 3 I	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Clapboard east of window.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Weathered
1	Red	
2	Red	
3	Red	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



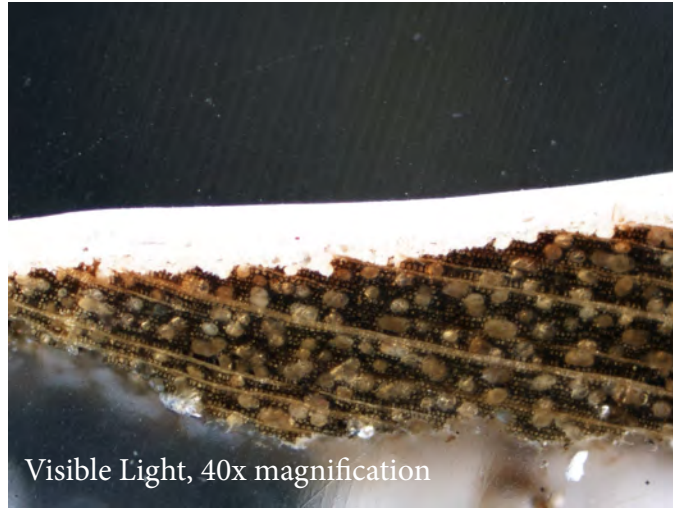
SAMPLE: CSB 32	LOCATION: Goat Barn 1st Floor
DESCRIPTION: North wall of original building.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Cream	
3	White / Light Gray	
4	White	
5	White	
6	White	
7		
8		
9		
10		
11		
12		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



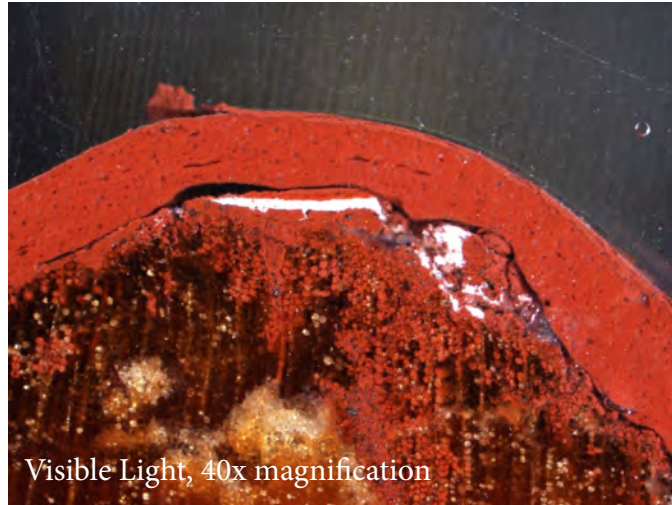
SAMPLE: CSB 33	LOCATION: Goat Barn 1st Floor
DESCRIPTION: West end wall of north shed addition.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	
2	White	
3	White	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



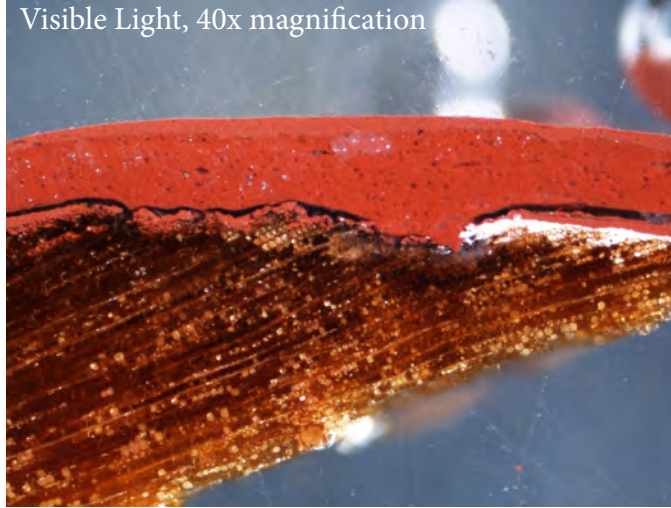
SAMPLE: CSB 34	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Window trim, west side of window, jamb trim.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		Weathering
1	Red	Leak down
2	White	
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

Visible Light, 40x magnification



SAMPLE: CSB 35	LOCATION: Goat Barn 1st Floor
DESCRIPTION: Window trim, east jamb.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	
2	Red	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

Visible Light, 40x magnification



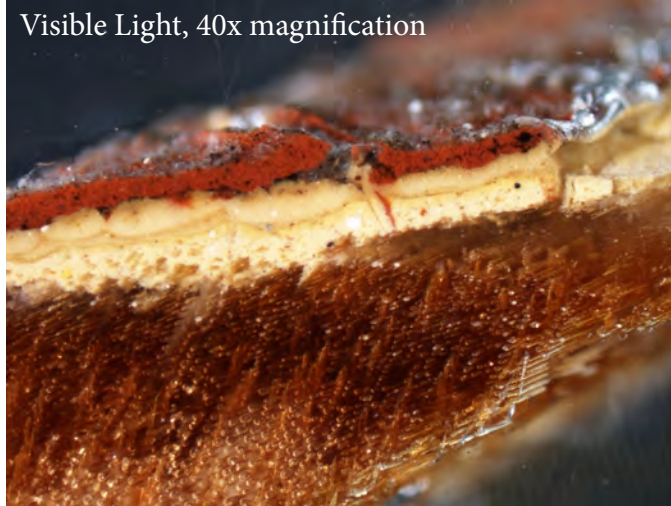
SAMPLE: CSB 36	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: Clapboards in gable of dormer, above door opening.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Dark Red (Browning)	
2	Red	
3	Red	
4	Red	
5	Red	
6	White	
7		
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

Visible Light, 40x magnification



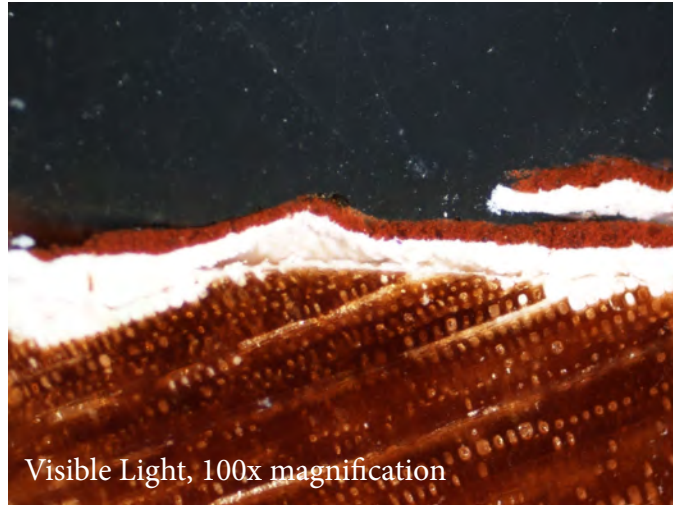
SAMPLE: CSB 37	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: Clapboards.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Cream	
2	Pale Yellow	
3	Cream	
4	Cream	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

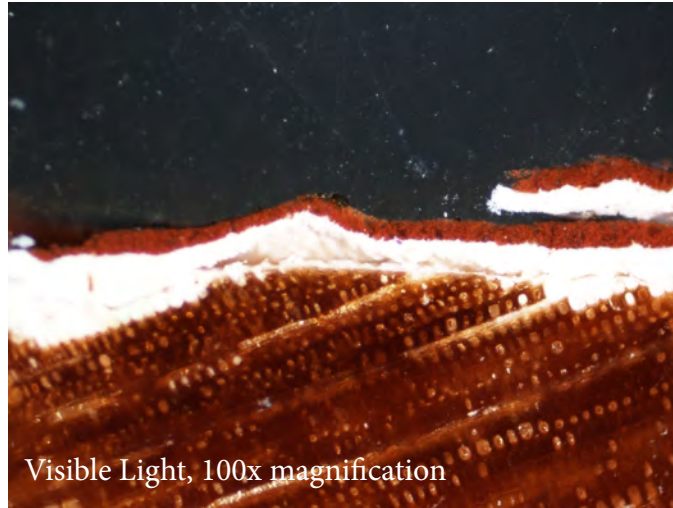


SAMPLE: CSB 38	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: East jamb of window opening, trim.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	
2	White	
3	Red	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



SAMPLE: CSB 39	LOCATION: Goat Barn 2nd Floor
DESCRIPTION: North face of shutter.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	White	
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 40

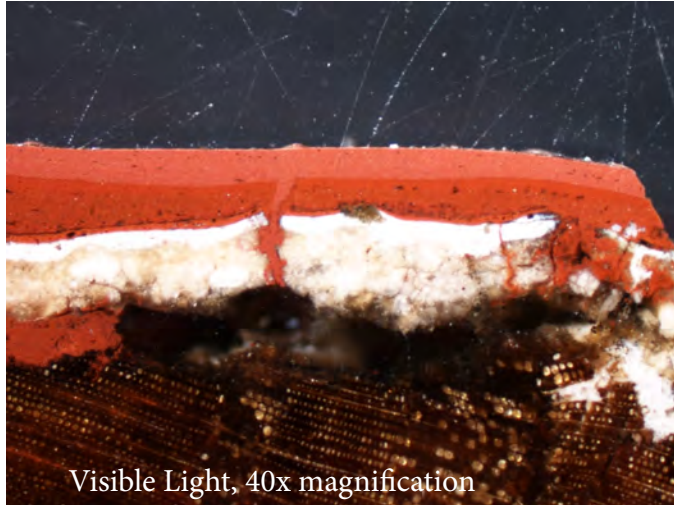
LOCATION: Goat Barn 2nd Floor

DESCRIPTION: Edge of shutter

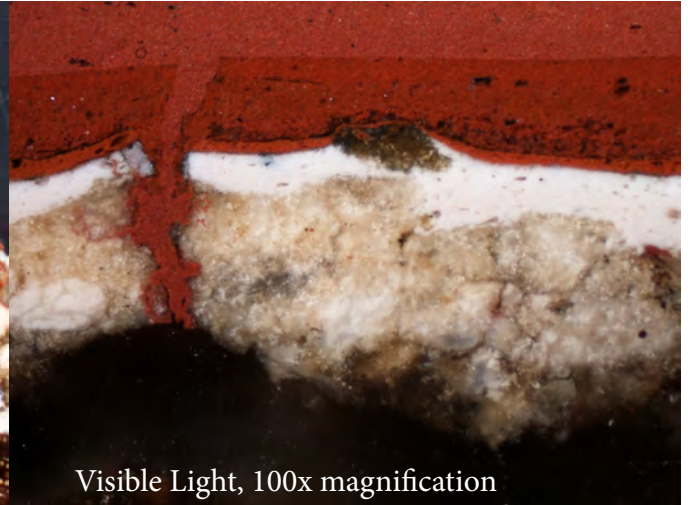
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	White	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



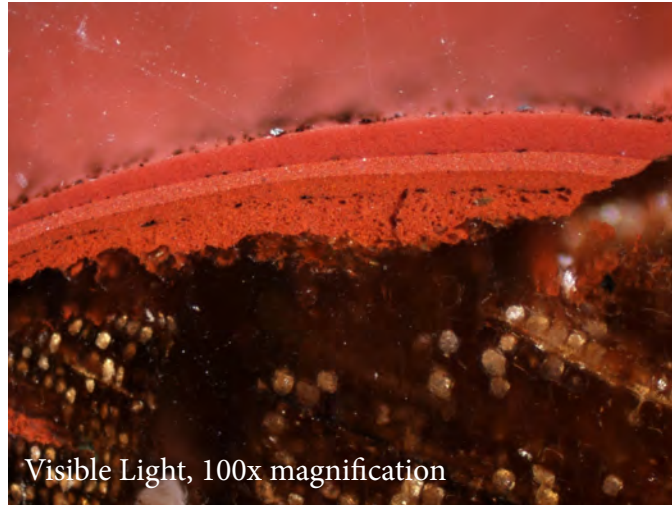
Visible Light, 100x magnification

SAMPLE: CSB 44	LOCATION: Isolation Quarters
DESCRIPTION: Clapboard below eaves.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White - limewash	
2	White - limewash	
3	White	
4	Red	
5	Red	
6	Red	
7	Red	
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



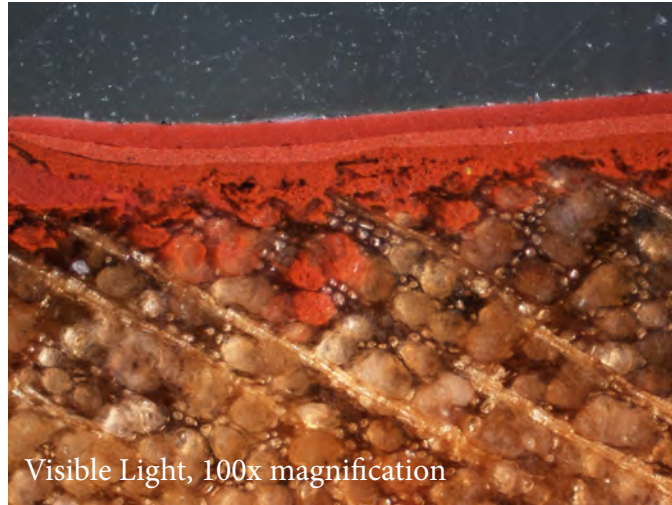
SAMPLE: CSB 45	LOCATION: Buck House
DESCRIPTION: West return (miter) of canted crown molding under pent cornice of gable (main Building).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	Red	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

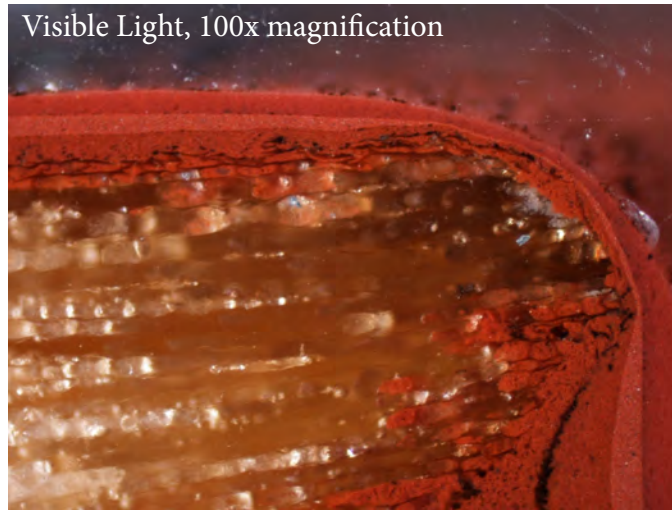


SAMPLE: CSB 46	LOCATION: Buck House
DESCRIPTION: Clapboard, 3rd down, below pent cornice (main building).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	Red	
3	Red	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

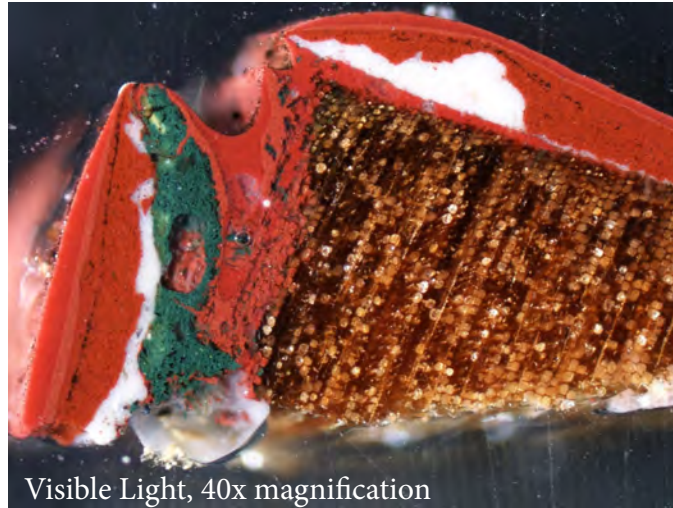


SAMPLE: CSB 47	LOCATION: Buck House
DESCRIPTION: Clapboard below shed roof (enclosed porch).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Red	
2	Red	
3	Red	
4	Red	
5		
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

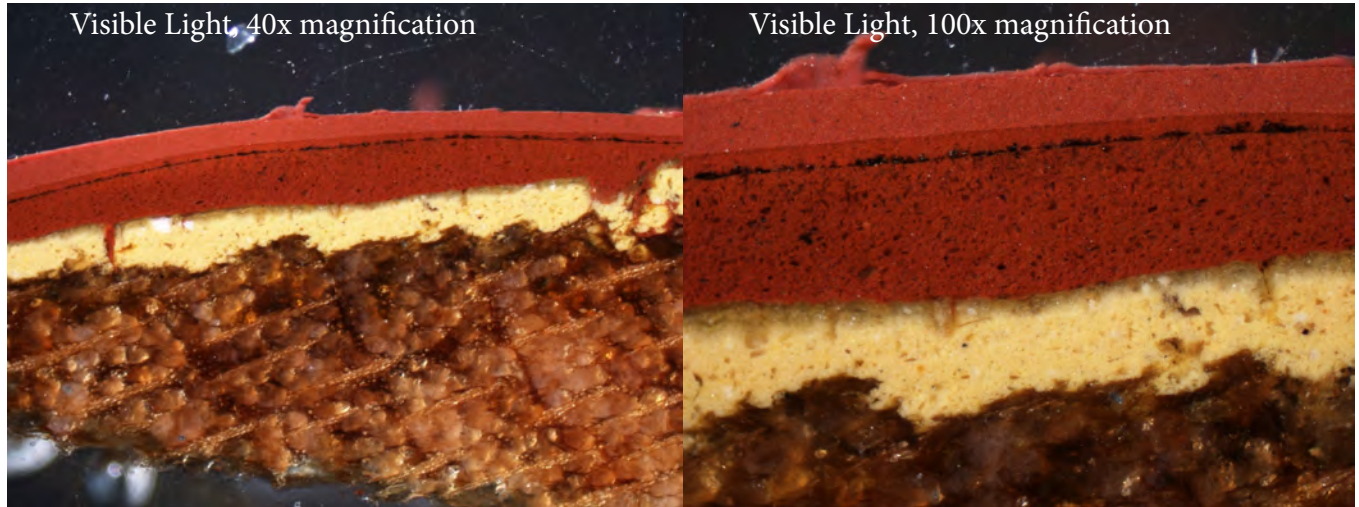


SAMPLE: CSB 48	LOCATION: Buck House
DESCRIPTION: Vertical corner trim of main building, approx 10" below pent cornice.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Dark Green (Kelly)	
2	White	
3	Red	
4	Red	
5	Red	
6	Red	
7		
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



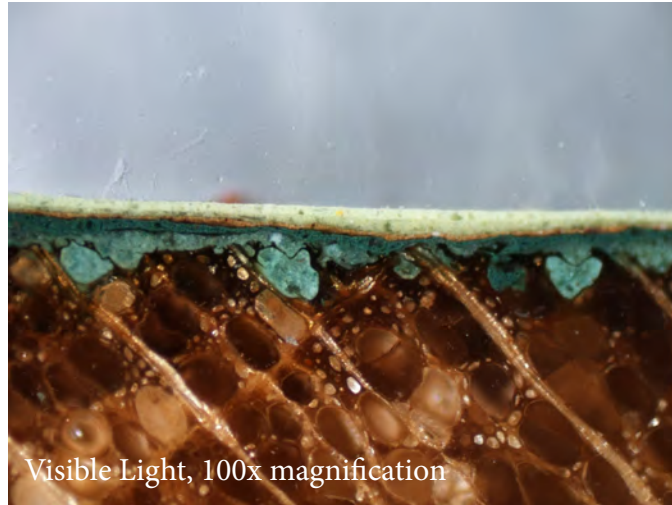
SAMPLE: CSB 49	LOCATION: Buck House
DESCRIPTION: Clapboard approx. 3.5' above ground.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Pale Yellow	
2	Light Brown	Discoloration?
3	Red	
4	Red	
5	Red	
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies

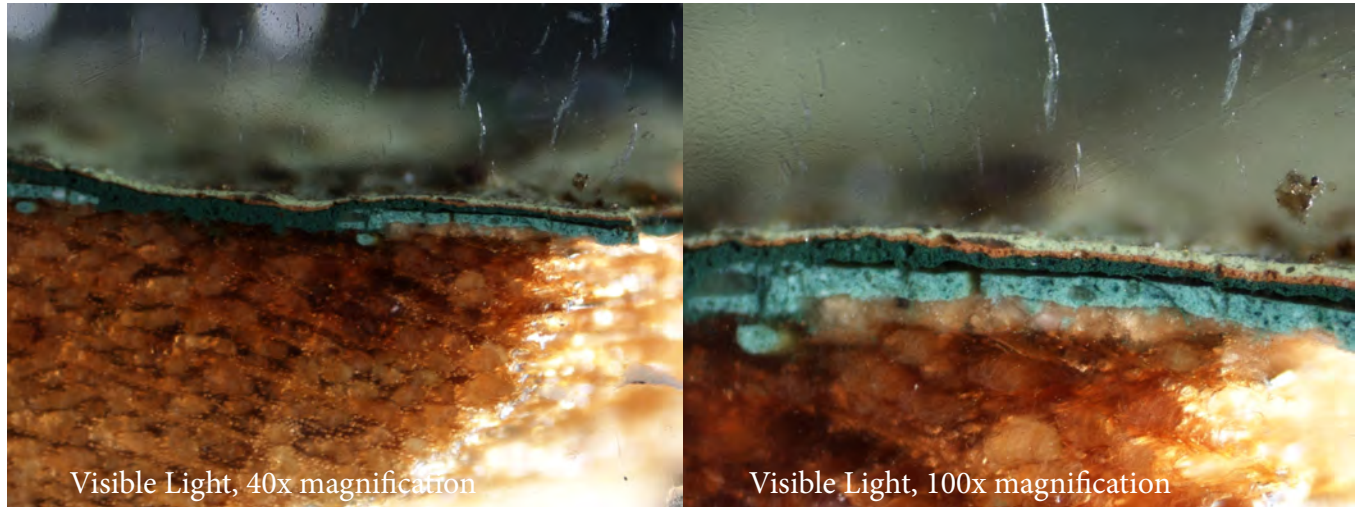


SAMPLE: CSB 50	LOCATION: Buck House
DESCRIPTION: Trim on south side of opening.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Blue- Green/ Turquoise	
2	Kelly Green (dark)	
3	Dark Orange	
4	Light Green	
5	Light Green	
6		
7		
8		
9		
10		
11		
12		
13		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies

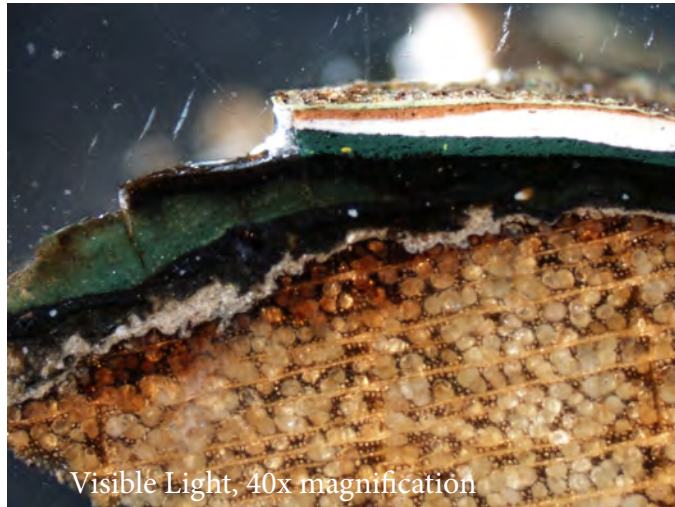


SAMPLE: CSB 51	LOCATION: Buck House
DESCRIPTION: Trim on west side of opening.	

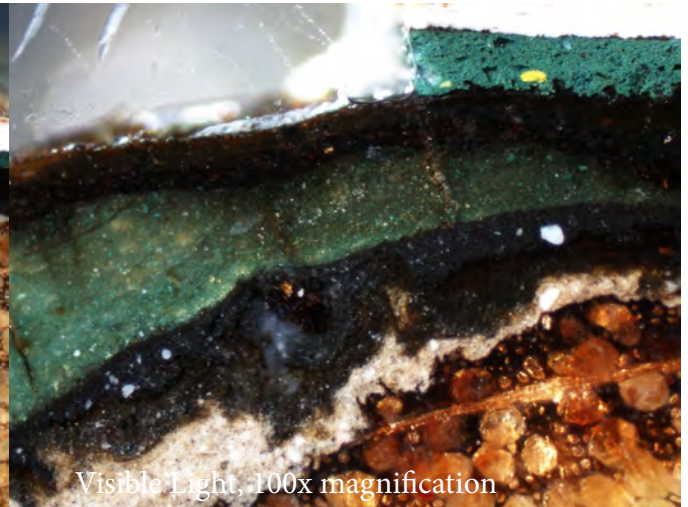
LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	White	Limewash?
2	Blue-Green/ Turquoise	
3	Dark Kelly Green	
4	Dark Orange	
5	Light Green	
6		
7		
8		
9		
10		
11		
12		

**Carl Sandburg Home National Historic Site
Barn Complex**

Finishes Analysis: Stratigraphies



Visible Light, 40x magnification



Visible Light, 100x magnification

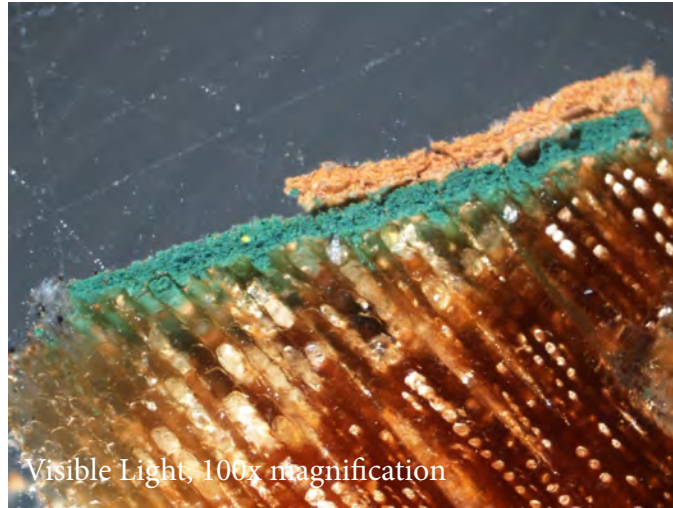
SAMPLE: CSB 52	LOCATION: Buck House
DESCRIPTION: Mantle (wood).	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Varnish	
2	Light Gray	
3	Dark Gray	
4	Dark Green	
5	Black	
6	Kelly Green	
7	White	
8	Dark Orange	
9	Light Green	
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



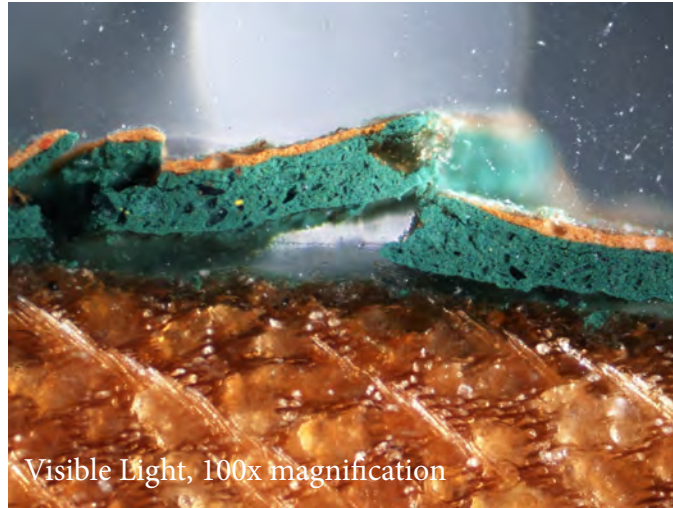
SAMPLE: CSB 54	LOCATION: Buck House
DESCRIPTION: Salvaged door hanging on wall above opening.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Kelly Green	
2	Dark Orange	
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Carl Sandburg Home National Historic Site

Barn Complex

Finishes Analysis: Stratigraphies



SAMPLE: CSB 55	LOCATION: Buck House
DESCRIPTION: Trim at jamb, south side of opening.	

LAYER	REFLECTED LIGHT COLOR	NOTES
Wood		
1	Dark Green	
2	Dark Orange	
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Appendix C:

Dendrochronology Report

**Oxford Tree-Ring Laboratory
Report 2014/17**

**The Tree-Ring Dating of the
Buck House and Selected Barns and Corn Crib of the Barns Complex at the
Carl Sandburg Home National Historic Site,
Flat Rock, North Carolina**

Michael J. Worthington and Jane I. Seiter

Oxford Tree-Ring Laboratory
25 East Montgomery Street, Baltimore, MD 21230
michael@dendrochronology.com
www.dendrochronology.com
Telephone: 410-929-1520

December 2014

Overview of Dendrochronology at the Carl Sandburg Home National Historic Site, Flat Rock, North Carolina

The Carl Sandburg Home National Historic Site was the home of the Pulitzer Prize-winning poet for twenty-two years. After his death, it was opened as an historic site to preserve his legacy. In addition to the Sandburg Residence it also contains Connemara, an award-winning goat farm run by Lillian Sandburg, Carl Sandburg's wife.

Dendrochronological analysis was commissioned on six buildings within the Connemara complex: the Buck House, the Isolation Quarters, the Buck Kid Quarters, the Main Barn, the Horse Barn, and the Corn Crib. This research was undertaken in an attempt to resolve individual questions relating to the construction of each building and to create a well-replicated master chronology to help date other buildings in the area. Forty-seven timbers in total were sampled from the six buildings, but none were found to date.

Dates sampled: November 6, 7, and 8, 2013; May 25 and 26, 2014

Owner: National Park Service

Commissioner: Joseph K. Oppermann - Architect

Street address: Flat Rock, NC 28731

Summary published: www.dendrochronology.com

Building summaries:



Figure 1. Buck House.

Buck House, Carl Sandburg Home, Flat Rock, NC (35.272098, -82.449123)

Felling dates: **Undated**

Rafter (0/1); Studs (0/3); Joist (0/1).

The Buck House is a two-level, wood-framed building with a central chimney stack, a porch on one side, and a lean-to addition on the back. It is situated several hundred yards to the northeast of the main farmyard, outside of the main farm complex.



Figure 2. Isolation Quarters.

Isolation Quarters, Carl Sandburg Home, Flat Rock, NC (35.271093, -82.449044)

Felling dates: **Undated**

Joists (0/4); Rafters (0/3); Stud (0/1).

The Isolation Quarters is a small, wood-framed structure of two levels clad in red weatherboard. It is located a short distance away from the main farmyard to the east of the garage.



Figure 3. Buck Kid Quarters.

Buck Kid Quarters, Carl Sandburg Home, Flat Rock, NC (35.271240, -82.449256)

Felling date: **Undated**

Joists (0/3); Brace (0/1); Stud (0/4).

The Buck Kid Quarters is a small, wood-framed structure of two levels clad in red weatherboard. It is located to the southeast of the Horse Barn and faces west onto the main farmyard.



Figure 4. Main Barn.

Main (or Goat) Barn, Carl Sandburg Home, Flat Rock, NC (35.271386, -82.449484)

Felling dates: **Undated**

Joists (0/6); Stud (0/1).

The Main Barn is the largest structure in the Connemara farm complex. It is a two-story, wood-framed building clad in red weatherboard. It faces south onto the main farmyard and is located to the west of the Horse Barn.



Figure 5. Horse Barn.

Horse Barn, Carl Sandburg Home, Flat Rock, NC (35.271422, -82.449305)

Felling dates: **Undated**

Joists (0/5); Brace (0/1); Stud (0/5); Door post (0/1).

The Horse Barn is a wood-framed structure of two levels clad in red weatherboard. It is located to the east of the Main Barn, with its gable facing south onto the main farmyard.



Figure 6. Corn Crib.

Corn Crib, Carl Sandburg Home, Flat Rock, NC (35.271226, -82.449365)

Felling dates: **Undated**

Door posts (0/2); Corner posts (0/2); Stud (0/2); Wall plate (0/1).

The Corn Crib is a small, single-story structure located in the main farmyard of the Connemara complex, to the south of the Main Barn. It is clad with horizontal lattice boards topped with a pitched shingled roof and sits on top of four posts that raise it several feet above the ground.

How Dendrochronology Works

Dendrochronology has over the past few decades become one of the leading and most accurate scientific dating methods. While not always successful, when it does work, it is precise, often to the season of the year. Tree-ring dating to this degree of precision is well known for its use in dating historic buildings and archaeological timbers. However, more ancillary objects such as doors, furniture, panel paintings, and wooden boards in medieval book-bindings can sometimes be successfully dated.

The science of dendrochronology is based on a combination of biology and statistics. In temperate zones, a tree puts on a new layer of growth underneath the bark every year, with the effect being that the tree grows wider and taller as it ages. Each annual ring is composed of the growth which takes place during the spring and summer and continues until about November, when the leaves are shed and the tree becomes dormant for the winter period. For the two principal American oaks, the white and red (*Quercus alba* and *Q. rubra*), as well as for the black ash (*Fraxinus nigra*) and many other species, the annual ring is composed of two distinct parts: the spring growth or early wood, and the summer growth, or late wood. Early wood is composed of large vessels formed during the period of shoot growth which takes place between March and May, before the establishment of any significant leaf growth. This is produced by using most of the energy and raw materials laid down the previous year. Then, there is an abrupt change at the time of leaf expansion around May or June when hormonal activity dictates a change in the quality of the xylem, and the summer growth, or late wood, is formed. Here the wood becomes increasingly fibrous and contains much smaller vessels. Trees with this type of growth pattern are known as ring-porous, and are distinguished by the contrast between the open, light-colored early wood vessels and the dense, darker-colored late wood.

Other species of tree, such as tulip poplar (*Liriodendron tulipifera* L.), are known as diffuse-porous. Unlike the ring-porous trees, the spring vessels consist of very small spring vessels that become even smaller as the tree advances into the summer growth. The annual growth rings are often very difficult to distinguish under even a powerful microscope, and one often needs to study the medullary rays, which thicken at the ring boundaries.

Dendrochronology utilizes the variation in the width of the annual rings as influenced by climatic conditions common to a large area, as opposed to other more local factors such as woodland competition and insect attack. It is these climate-induced variations in ring widths that allow calendar dates to be ascribed to an undated timber when compared to a firmly-dated sequence. If a tree section is complete to the bark edge, then when dated a precise date of felling can be determined. The felling date will be precise to the season of the year, depending on the degree of formation of the outermost ring. Therefore, a tree with bark that has the spring vessels formed but no summer growth can be said to be felled in the spring, although it is not possible to say in which particular month the tree was felled.

Another important dimension to dendrochronological studies is the presence of sapwood and bark. This is the band of growth rings immediately beneath the bark and comprises the living growth rings which transport the sap from the roots to the leaves. This sapwood band is distinguished from the heartwood by the prominent features of color change and the blocking of the spring vessels with tyloses, the waste products of the tree's growth. The heartwood is generally darker in color, and the spring vessels are usually blocked with tyloses. The heartwood is dead tissue, whereas the sapwood is living, although the only really living, growing, cells are in the cambium, immediately beneath the bark. In the American white oak (*Quercus alba*), the difference in color is not generally matched by the change in the spring vessels, which are often filled by tyloses to within a year or two of the terminal ring. Conversely, the spring vessels in the American red oak (*Q. rubra*) are almost all free of tyloses, right to the pith. Generally the sapwood retains stored food and is therefore attractive to insect and fungal attack once the tree is felled and therefore is often removed during conversion.

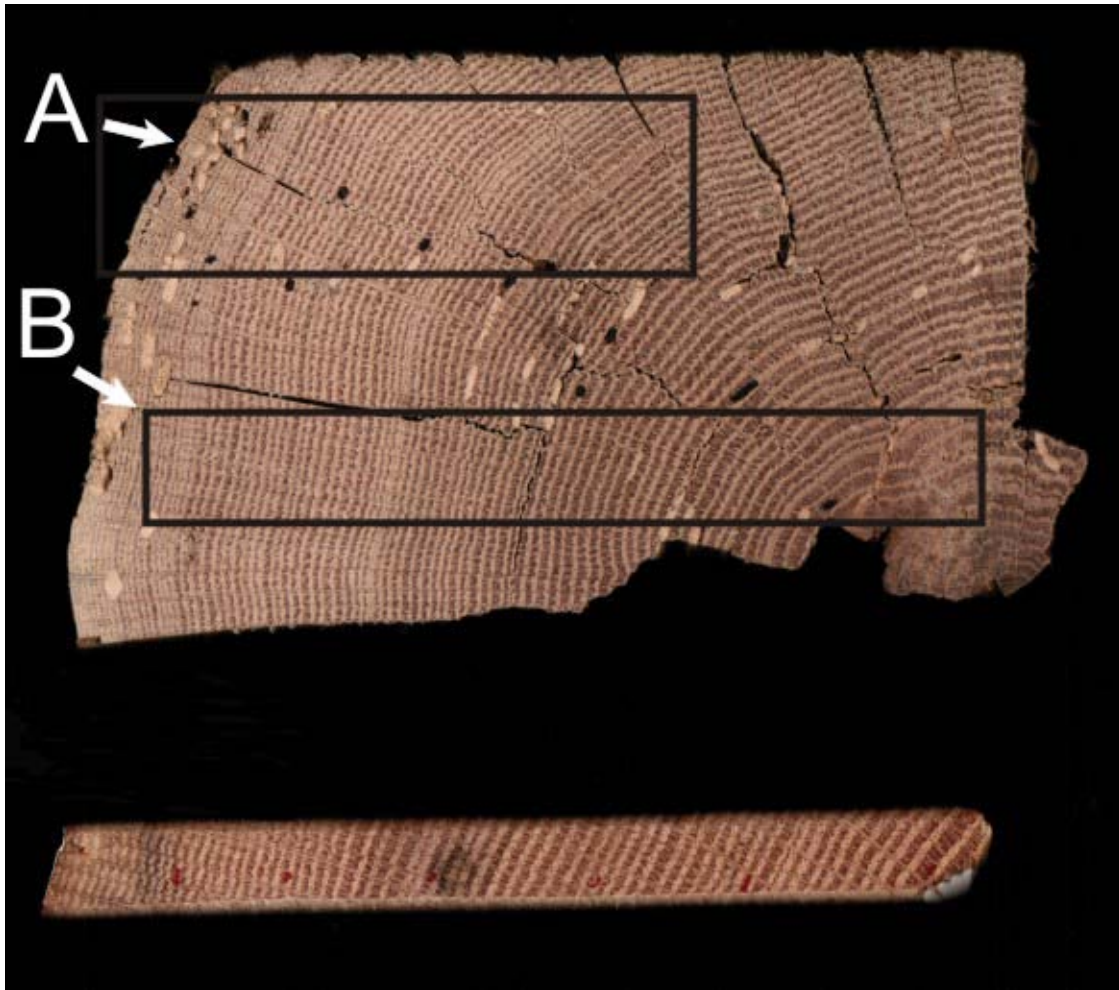


Figure 7. A cross-section of an oak timber with sapwood rings on the left-hand side (above). The boxes illustrate conversion methods resulting in **A**) a precise felling date and **B**) a *terminus post quem* or felled after date. Also pictured is a core showing complete sapwood (below).

Methodology: The Dating Process

Forty-seven timbers were sampled in total. All samples were from what appeared to be primary first-use timbers. Timbers that looked most suitable for dendrochronological purposes—those with complete sapwood or reasonably long ring sequences—were selected. Timbers were sampled through coring, using a 16 mm hollow auger. Details and locations of the samples are given in the summary tables.

The dry samples were sanded on a finisher, or bench-mounted belt sander, using 60 to 1200 grit abrasive paper, and were cleaned with compressed air to allow the ring boundaries to be clearly distinguished. They were then measured under a x10/x30 microscope using a travelling stage electronically displaying displacement to a precision of 0.01mm. Thus each ring or year is represented by its measurement which is arranged as a series of ring-width indices within a data set, with the earliest ring being placed at the beginning of the series, and the latest or outermost ring concluding the data set.

As indicated above, the principle behind tree-ring dating is a simple one: the seasonal variations in climate-induced growth as reflected in the varying width of a series of measured annual rings is compared with other, previously dated ring sequences to allow precise dates to be ascribed to each ring. When an undated sample or site sequence is compared against a dated sequence, known as a reference chronology, an indication of how good the match is must be determined. Although it is almost impossible to define a visual

match, computer comparisons can be accurately quantified. While it may not be the best statistical indicator, Student's (a pseudonym for W S Gosset) t -value has been widely used among dendrochronologists. The cross-correlation algorithms most commonly used and published are derived from Baillie and Pilcher's CROS program (Baillie and Pilcher 1973).

Generally, t -values over 3.5 should be considered significant, although in reality it is common to find demonstrably spurious t -values of 4 and 5 because more than one matching position is indicated. For this reason, dendrochronologists prefer to see some t -value ranges of 5, 6, or higher, and for these to be well replicated from different, independent chronologies with local and regional chronologies well represented. Users of dates also need to assess their validity critically. They should not have great faith in a date supported by a handful of t -values of 3s with one or two 4s, nor should they be entirely satisfied with a single high match of 5 or 6. Examples of spurious t -values in excess of 7 have been noted, so it is essential that matches with reference chronologies be well replicated, and that this is confirmed with visual matches between the two graphs. Matches with t -values of 10 or more between individual sequences usually signify having originated from the same parent tree.

In reality, the probability of a particular date being valid is itself a statistical measure depending on the t -values. Consideration must also be given to the length of the sequence being dated as well as those of the reference chronologies. A sample with 30 or 40 years growth is likely to match with high t -values at varying positions, whereas a sample with 100 consecutive rings is much more likely to match significantly at only one unique position. Samples with ring counts as low as 50 may occasionally be dated, but only if the matches are very strong, clear, and well replicated, with no other significant matching positions. This is essential for intra-site matching when dealing with such short sequences. Consideration should also be given to evaluating the reference chronology against which the samples have been matched: those with well-replicated components that are geographically near to the sampling site are given more weight than an individual site or sample from far away.

It is general practice to cross-match samples from within the same phase to each other first, combining them into a site master, before comparing with the reference chronologies. This has the advantage of averaging out the "noise" of individual trees and is much more likely to obtain higher t -values and stronger visual matches. After measurement, the ring-width series for each sample is plotted as a graph of width against year on log-linear graph paper. The graphs of each of the samples in the phase under study are then compared visually at the positions indicated by the computer matching and, if found satisfactory and consistent, are averaged to form a mean curve for the site or phase. This mean curve and any unmatched individual sequences are compared against dated reference chronologies to obtain an absolute calendar date for each sequence. Sometimes, especially in urban situations, timbers may have come from different sources and fail to match each other, thus making the compilation of a site master difficult. In this situation samples must then be compared individually with the reference chronologies.

Therefore, when cross-matching samples with each other, or against reference chronologies, a combination of both visual matching and a process of qualified statistical comparison by computer is used. For this study, the ring-width series were compared on an IBM compatible computer for statistical cross-matching using a variant of the Belfast CROS program (Baillie and Pilcher 1973).

Ascribing and Interpreting Felling Dates

Once a tree-ring sequence has been firmly dated in time, a felling date, or date range, is ascribed where possible. For samples that have sapwood complete to the underside of, or including, bark, this process is relatively straight forward. Depending on the completeness of the final ring, i.e. if it has only the early wood formed, or the latewood, a *precise felling date and season* can be given. Where the sapwood is partially missing, or if only a heartwood/sapwood transition boundary survives, then the question of when the tree was felled becomes considerably more complicated. In the European oaks, sapwood tends to be of a

relatively constant width and/or number of rings, and it is possible to estimate the approximate number of sapwood rings that are missing from any given timber.

Unfortunately, it has not been possible to apply an accurate sapwood estimate to either the white or red oaks at this time. Primarily, it would appear that there is a complete absence of literature on sapwood estimates for oak anywhere in the country (Grissino-Mayer, *pers comm*). The matter is further complicated in that the sapwood in white oak (*Quercus alba*) occurs in two bands, with only the outer ring or two being free of tyloses in the spring vessels (Gerry 1914; Kato and Kishima 1965). Out of some 50 or so samples, only a handful had more than 3 rings of sapwood without tyloses. The actual sapwood band is differentiated sometimes by a lighter color, although this is often indiscernible (Desch 1948). In archaeological timbers, the lighter colored sapwood does not collapse as it does in the European oak (*Q. robur*), but only the last ring or two without tyloses shrink tangentially. In these circumstances the only way of being able to identify the heartwood/sapwood boundary is by recording how far into the timber wood boring beetle larvae penetrate, as the heartwood is not usually susceptible to attack unless the timber is in poor or damp conditions. Despite all of these drawbacks, some effort has been made in recording sapwood ring counts on white oak, although the effort is acknowledged to be somewhat subjective.

As for red oaks (*Quercus rubra*) it will probably not be possible to determine a sapwood estimate as these are what are known as “sapwood trees” (Chattaway 1952). Whereas the white oak suffers from an excess of tyloses, these are virtually non-existent in the red oak, even to the pith. Furthermore, there is no obvious color change throughout the section of the tree, and wood-boring insects will often penetrate right through to the center of the timber. Therefore, in sampling red oaks, it is vital to retain the final ring beneath the bark, or to make a careful note of the approximate number of rings lost in sampling, if any meaningful interpretation of felling dates is to be made. Similarly, no study has been made in estimating the number of sapwood rings in tulip-poplar, black ash, or any of the pines.

Therefore, if the bark edge does not survive on any of the timbers sampled, only a *terminus post quem* or *felled after* date can be given. The earliest possible felling date would be the year after the last measured ring date, adjusted for any unmeasured rings or rings lost during the process of coring.

Some caution must be used in interpreting solitary precise felling dates. Many instances have been noted where timbers used in the same structural phase have been felled one, two, or more years apart. Whenever possible, a group of precise felling dates should be used as a more reliable indication of the construction period. It must be emphasized that dendrochronology can only date when a tree has been felled, not when the timber was used to construct the structure under study. However, it is common practice to build timber-framed structures with green or unseasoned timber and therefore construction usually took place within twelve to eighteen months of felling (Miles 1997).

Details of Dendrochronological Analysis

The results of the dendrochronological analysis for the buildings under study are presented in a number of detailed tables. The most useful of these is the summary **Table 1**. This gives most of the salient results of the dendrochronological process, and includes details for each sample, such as its species, location, and felling date, if successfully tree-ring dated. This last column is of particular interest to the end user, as it gives the actual year and season when the tree was felled, if bark or bark edge is present. If bark edge is not present, it gives a *terminus post quem* or date after which the timber was felled. Often these *terminus post quem* dates begin far earlier than any associated precise felling dates. This is simply because far more rings have been lost in the initial conversion of the timber. If the sapwood was complete on the timber but some was lost during coring, an estimated date range can sometimes be given.

It will also be noticed that often the precise felling dates will vary within several years of each other. Unless there is supporting archaeological evidence suggesting different phases, all this would indicate is either

stockpiling of timber, or of trees that had been felled or died at varying times but were not cut up until the commencement of the particular building operations in question. When presented with varying precise felling dates, one should always take the latest date for the structure under study, and it is likely that construction will have been completed for ordinary vernacular buildings within twelve or eighteen months from this latest felling date (Miles 1997).

Table 2 gives an indication of the statistical reliability of the match between one sequence and another. This shows the t -value over the number of years overlap for each combination of samples in a matrix table. It should be born in mind that t -values with less than 80 rings overlap may not truly reflect the same degree of matching and that spurious matches may produce similar values.

First, multiple radii have been cross-matched with each other and combined to form same-timber means. These are then compared with other samples from the site and any which are found to have originated from the same parent tree are again similarly combined. Finally, all samples, including all same timber and same tree means, are combined to form one or more site masters. Again, the cross-matching is shown as a matrix table of t -values over the number of years overlaps. Reference should always be made to **Table 1** to clearly identify which components have been combined.

Table 3 shows the degree of cross-matching between the site master(s) and a selection of reference chronologies. This shows the state or region from which the reference chronology originated, the common chronology name, the publication reference, and the years covered by the reference chronology. The number of overlapping years between the reference chronology and the site master is also shown together with the resulting t -value. It should be noted that well replicated regional reference chronologies, which are shown in **bold**, will often produce better matches than individual site masters or indeed individual sample sequences.

Figures include a bar diagram that shows the chronological relationship between two or more dated samples from a phase of building and any plans showing sample locations, if available.

Publication of all dated sites for English buildings occurs annually in *Vernacular Architecture*, but regrettably there is at the present time no vehicle available for the publication of dated American buildings. However, a similar entry is shown on the summary page of the report, which could be used in any future publication of American dates. This does not give as much technical data for the samples dated, but does give the t -value matches against the relevant chronologies, provides a short descriptive paragraph for each building or phase dated, and gives a useful short summary of samples dated. These summaries are also listed on the web-site maintained by the Laboratory, which can be accessed at www.dendrochronology.com. The Oxford Tree-Ring Laboratory retains copyright of this report, but the commissioner of the report has the right to use the report for his or her own use so long as the authorship is quoted. Primary data and the resulting site master(s) used in the analysis are available from the Laboratory on request by the commissioner and bona fide researchers. The samples form part of the Laboratory archives, unless an alternative archive, such as the Colonial Williamsburg Foundation in association with the Oxford Tree-Ring Laboratory, has been specified in advance.

Sampling

The Carl Sandburg Home National Historic Site was the home of the Pulitzer Prize-winning poet for twenty-two years. After his death, it was opened as an historic site to preserve his legacy. In addition to the Sandburg Residence it also contains Connemara, an award-winning goat farm run by Lillian Sandburg, Carl Sandburg's wife.

Dendrochronological analysis was commissioned on six buildings within the Connemara complex: the Buck House, the Isolation Quarters, the Buck Kid Quarters, the Main (or Goat) Barn, the Horse Barn, and the Corn Crib. This research was undertaken in an attempt to resolve individual questions relating to the construction of each building and to create a well-replicated master chronology to help date other buildings in the area.

Forty-seven timbers from the six buildings were sampled in total: five from the Buck House, eight from the Isolation Quarters, eight from the Buck Kid Quarters, seven from the Main Barn, twelve from the Horse Barn, and seven from the Corn Crib.

Summary of Dating

1. Buck House

Five timbers were sampled from the first floor of the Buck House: three studs, one rafter, and one joist. All were of Southern yellow pine. Each timber sample was given the code **cs**ha (for Carl Sandburg Home, building a) and numbered 1 to 5 (see table 1a). The position of each sample was noted at the time of sampling (see figure 8).

Bark edge survived on three of the five timbers deemed suitable for analysis. The outer wood on some of the timbers was extremely friable and therefore difficult to keep intact during coring. Multiple samples were taken from two of these timbers in order to maximize the chances of retaining a complete core. Samples from one of these timbers were found to match together successfully, with the samples being combined to form the new individual sample sequence **cs**ha2, which was used in the rest of the analysis (see table 2a). The multiple samples from timber **cs**ha3 did not match together and were used individually in the rest of the analysis.

All of the timber sequences from the Buck House were compared with each other, but none of the timbers were found to match each other. The individual samples were then compared with more than 700 dated regional reference chronologies. None were found to date, and therefore the Buck House remains undated.

2. Isolation Quarters

Eight timbers were sampled from the Isolation Quarters: four joists and one stud from the first floor and three rafters from the attic. The stud and all of the rafters were of Southern yellow pine. Two joists were of white oak, one was of American chestnut, and a fourth was of shagbark hickory. Each sample was given the code **cs**hi (for Carl Sandburg Home, Isolation Quarters) and numbered 1 to 8 (see table 1b). The position of each sample was noted at the time of sampling (see figure 9).

Bark edge survived on six of the eight timbers deemed suitable for analysis. The outer wood on some of the timbers was extremely friable and therefore difficult to keep intact during coring. Multiple samples were taken from five of these timbers in order to maximize the chances of retaining a complete core. Samples from two of these timbers were found to match together successfully, with the samples being combined to form the new individual sample sequences **cs**hi3 and **cs**ha6, which were used in the rest of the analysis (see table 2b). The multiple samples from timbers **cs**hi1, **cs**hi4, and **cs**hi5 did not match together and were used individually in the rest of the analysis.

All of the timber sequences from the Isolation Quarters were compared with each other. Two timbers were found to match each other (**csHi6** and **csHi7a2**) and were therefore combined to form the 131-ring site master **CSHlx1**.

The new site master and all of the individual timbers were compared with more than 700 dated regional reference chronologies. None were found to date, and therefore the Isolation Quarters remains undated.

3. Buck Kid Quarters

Eight timbers were sampled from the Buck Kid Quarters: three joists and one brace from the first floor and four studs from the attic. All of the timbers were of Southern yellow pine. Each sample was given the code **csHk** (for Carl Sandburg Home, Kid Quarters) and numbered 1 to 8 (see table 1c). The position of each sample was noted at the time of sampling (see figure 10).

Bark edge survived on six of the eight timbers deemed suitable for analysis. The outer wood on some of the timbers was extremely friable and therefore difficult to keep intact during coring. Multiple samples were taken from two of these timbers in order to maximize the chances of retaining a complete core. Samples from one of these timbers were found to match together successfully, with the samples being combined to form the new individual sample sequence **csHk5**, which was used in the rest of the analysis (see table 2c). The multiple samples from timber **csHk4** did not match together and were used individually in the rest of the analysis.

All of the timber sequences from the Buck Kid Quarters were compared with each other. Two timbers were found to match each other (**csHk7** and **csHk8**) and were therefore combined to form the timber mean **csHk78**. This timber mean was found to match with the sample sequence **csHk5** and the two were combined to form the 101-ring site master **CSHKx1**.

The new site master and all of the individual timbers were compared with more than 700 dated regional reference chronologies. None were found to date, and therefore the Buck Kid Quarters remains undated.

4. Main Barn

Seven timbers were sampled from first floor of the Main (or Goat) Barn: six joists and one stud. All were of Southern yellow pine, except for one of the joists, which was of white oak. Each sample was given the code **csHg** (for Carl Sandburg Home, Goat Barn) and numbered 1 to 7 (see table 1d). The position of each sample was noted at the time of sampling (see figure 11).

Bark edge survived on five of the seven timbers deemed suitable for analysis. The outer wood on some of the timbers was extremely friable and therefore difficult to keep intact during coring. Multiple samples were taken from three of these timbers in order to maximize the chances of retaining a complete core. None of the multiple samples were found to match together successfully.

All of the timber sequences from the Main Barn were compared with each other and with more than 700 dated regional reference chronologies. None were found to date, and therefore the Main Barn remains undated.

5. Horse Barn

Twelve timbers were sampled from the first floor of the Horse Barn: five joists, five studs, one brace, and one door post. Four of the joists were of shagbark hickory while the rest of the timbers were of white oak. Each sample was given the code **csHh** (for Carl Sandburg Home, Horse Barn) and numbered 1 to 12 (see table 1e). The position of each sample was noted at the time of sampling (see figure 12).

Bark edge survived on five of the twelve timbers deemed suitable for analysis. All of the timber sequences from the Horse Barn were compared with each other but none were found to match, nor were the timber sequences found to date when compared with more than 700 dated regional reference chronologies, leaving the Horse Barn undated.

6. Corn Crib

Seven timbers were sampled from the Corn Crib: two door posts, two corner posts, two studs, and a wall plate. All of the timbers were of white oak. Each sample was given the code **csbcc** (for Carl Sandburg Home, Corn Crib) and numbered 1 to 7 (see table 1f). The position of each sample was noted at the time of sampling (see figure 13).

Bark edge survived on three of the seven timbers deemed suitable for analysis. The outer wood on some of the timbers was extremely friable and therefore difficult to keep intact during coring. Multiple samples were taken from one of these timbers in order to maximize the chances of retaining a complete core. The multiple samples were found to match together successfully and were combined to form the new individual sample sequence **csbcc5**, which was used in the rest of the analysis (see table 2f).

All of the timber sequences from the Corn Crib were compared with each other. Three timbers were found to match each other (**csbcc2**, **csbcc3**, and **csbcc5**) and were therefore combined to form the 99-ring site master **CSBCCx1**.

The new site master and all of the individual timbers were compared with more than 700 dated regional reference chronologies. None were found to date, and therefore the Corn Crib remains undated.

Interpretation

Unfortunately, none of the six buildings sampled at the Carl Sandburg Home have been found to date. Several problems contributed to the difficulty in dating these buildings. Upon initial assessment, it was determined that many of the timbers within the buildings contained fewer than the minimum fifty annual rings needed for dendrochronological analysis. Of the timbers with more than fifty annual rings, a large number contained evidence of historic powderpost beetle attacks, which had left beetle galleries or voids inside of the wood. The voids caused the wood to break up on coring, and although multiple samples were taken from these timbers in an attempt to produce an intact core, an uninterrupted sequence of rings could not be collected in many cases. A number of timbers were also found to have been converted from tree species that are less reliable when used in dendrochronology, such as American chestnut, which rarely dates against available chronologies, and shagbark hickory, which has no historic chronologies with which to compare samples.

On analyzing the samples, no inter-site correlation was found for three of the buildings (the Buck House, the Main Barn, and the Horse Barn) while the inter-site correlation that was found for the remaining three buildings (the Isolation Quarters, the Buck Kid Quarters, and the Corn Crib) was very limited. Well-replicated site chronologies with robust inter-site correlation average out any anomalies from the individual samples and produce chronologies that contain a stronger climate signal, which are more likely to match with existing dated area master chronologies. In cases with weak inter-site correlation, each individual sample must be run against the master chronologies, limiting the matching potential for each sample.

The final difficulty in dating the buildings at the Carl Sandburg Home is their location in western North Carolina, at a considerable distance from the major concentration of dated master chronologies in eastern North Carolina, Virginia, and Maryland. This makes the effects of any local micro-climate more of an issue. Buildings in micro-climates tend to start dating when a large amount of data has been sampled from a sizeable number of buildings around that area, which has not yet been done for the Flat Rock area. It is

hoped that in the future, as more dendrochronological data becomes available in the western North Carolina region, it will be possible to date some or all of the Carl Sandburg Home buildings. To increase this possibility, it is recommended that during future building work at the site, any cut pieces of timber should be saved with the timber's location within the building carefully noted for further dendrochronological analysis.

Acknowledgements

Thanks are given to Joe Oppermann for organizing this project and making sure everything ran smoothly on site; to Langdon Oppermann for providing delightful accommodation and good company during the sampling process; and to Miriam Farris and the staff of the Carl Sandburg Home National Historic Site for their help while on site. Thanks are also due to Henri Grissino-Mayer of the University of Tennessee for making available both published and unpublished reference chronologies.

References

- Baillie, M G L and Pilcher, J R 1973 A Simple Cross-Dating Program for Tree-Ring Research, *Tree-Ring Bulletin* **33**: 7-14
- Chattaway, M M 1949 The Development of Tyloses and Secretion of Gum in Heartwood Formation, *Australian Journal of Scientific Research, Series B, Biological Sciences* **2**: 227-240
- Desch, H E 1948 The Cedars, *Wood* **13** (2): 40-3
- Gerry, E 1914 Tyloses: Their Occurrence and Practical Significance in Some American Wood, *Journal of Agricultural Research* **1**: 335-469
- Fritts, H C 1976 *Tree Rings and Climate*, London, Academic Press
- Kato, H and Kishima, T 1965 Some Morphological Observations of Tyloses, *Wood Research* **36**: 55-60
- Miles, D H 1997 The Interpretation, Presentation, and Use of Tree-Ring Dates, *Vernacular Architecture* **28**: 40-56
- Munro, M A R 1984 An Improved Algorithm for Crossdating Tree-Ring Series, *Tree-Ring Bulletin* **44**: 17-27

Table 1a: Summary of Tree-Ring Dating

BUCK HOUSE, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width	Std devn	Mean sens	Felling seasons and dates/date ranges
csa1	c	PISP	Rafter 4 th from south end	-	h/w only	22	2.02	0.50	0.281
csa2a1	c	PISP	Stud center south wall	-	h/w only	16	1.75	0.42	0.285
csa2a2	c	PISP	ditto	-	C	50	1.16	0.33	0.258
csa2b1	c	PISP	ditto	-	h/w only	25	1.23	0.33	0.215
csa2b2	c	PISP	ditto	-	h/w only	8	1.23	0.23	0.176
csa2	m	Mean of csa2a2 + csa2b1	-	C	58	1.18	0.33	0.245	
csa3a	c	PISP	Joist 1 st from south	-	h/w only	22	1.05	0.32	0.319
csa3b	c	PISP	ditto	-	C	56	0.68	0.44	0.309
csa3c	c	PISP	ditto	-	½C	29	0.74	0.20	0.195
csa3d	c	PISP	ditto	-	½C	66	0.94	0.34	0.223
csa3e	c	PISP	ditto	-	h/w only	49	1.40	0.51	0.303
csa3f	c	PISP	ditto	-	½C	26	0.67	0.18	0.234
csa4	c	PISP	Stud center north wall	-	½C	62	0.76	0.41	0.250
csa5	c	PISP	Stud 3 rd from west north wall	-	h/w only	56	1.80	0.76	0.304

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring:
¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); h/w only = heartwood only- last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; N/M=additional rings not measured; PISP = *Pinus L.* (Southern yellow pine)

Explanation of terms used in Table 1

The summary table gives most of the salient results of the dendrochronological process. For ease in quickly referring to various types of information, these have all been presented in Table 1. The information includes the following categories:

Sample number: Generally, each site is given a two or three letter identifying prefix code, after which each timber is given an individual number. If a timber is sampled twice, or if two timbers were noted at time of sampling as having clearly originated from the same tree, then they are given suffixes 'a', 'b', etc. Where a core sample has broken, with no clear overlap between segments, these are differentiated by a further suffix '1', '2', etc.

Type shows whether the sample was from a core 'c', or a section or slice from a timber's'. Sometimes photographs are used 'p', or timbers measured *in situ* with a graticule 'g'.

Species gives the four-letter species code used by the International Tree-Ring Data Bank, at NOAA. These are identified in the key at the bottom of the table.

Timber and position column details each timber sampled along with a location reference. This will usually refer to a bay or truss number, or relate to compass points or to a reference drawing.

Dates AD spanning gives the first and last measured ring dates of the sequence (if dated),

H/w only occurs on a sample that contains only the heartwood of the tree and retains no sapwood/bark edge.

Sapwood complement gives the number of sapwood rings, if identifiable. The tree starts growing in the spring during which time the earlywood is produced, also known also as spring growth. This consists of between one and three decreasing spring vessels and is noted as *Spring* felling and is indicated by a ¼ C after the number of sapwood ring count. Sometimes this can be more accurately pin-pointed to very early spring when just a few spring vessels are visible. After the spring growing season, the latewood or summer growth commences, and is differentiated from the proceeding spring growth by the dense band of tissue. This summer growth continues until just before the leaves drop, in about October. Trees felled during this period are noted as *summer* felled (½ C), but it is difficult to be too precise, as the width of the latewood can be variable, and it can be difficult to distinguish whether a tree stopped growing in autumn or *winter*. When the summer

growth band is clearly complete, then the tree would have been felled during the dormant winter period, as shown by a single C. Sometimes a sample will clearly have complete sapwood, but due either to slight abrasion at the point of coring, or extremely narrow growth rings, it is impossible to determine the season of felling.

Number of rings: The total number of measured rings included in the samples analysed.

Mean ring width: This, simply put, is the sum total of all the individual ring widths, divided by the number of rings, giving an average ring width for the series.

Mean sensitivity: A statistic measuring the mean percentage, or relative, change from each measured yearly ring value to the next; that is, the average relative difference from one ring width to the next, calculated by dividing the absolute value of the differences between each pair of measurements by the average of the paired measurements, then averaging the quotients for all pairs in the tree-ring series (Fritts 1976). Sensitivity is a dendrochronological term referring to the presence of ring-width variability in the radial direction within a tree which indicates the growth response of a particular tree is "sensitive" to variations in climate, as opposed to complacency.

Standard deviation: The mean scatter of a population of numbers from the population mean. The square root of the variance, which is itself the square of the mean scatter of a statistical population of numbers from the population mean. (Fritts 1976).

Felling seasons and dates/date ranges is probably the most important column of the summary table. Here the actual felling dates and seasons are given for each dated sample (if complete sapwood is present). Sometimes it will be noticed that often the precise felling dates will vary within several years of each other. Unless there is supporting archaeological evidence suggesting different phases, all this would indicate is either stockpiling of timber, or of trees which have been felled or died at varying times but not cut up until the commencement of the particular building operations in question. When presented with varying precise felling dates, one should always take the *latest* date for the structure under study, and it is likely that construction will have been completed for ordinary vernacular buildings within twelve or eighteen months from this latest felling date (Miles 1997)

Table 2a: Matrix of *t*-values and overlaps for same-timber mean

Components of timber mean **csa2**

Sample: **csa2b1**
Last ring
date AD:

csa2a2 5.80
 17

Table 1b: Summary of Tree-Ring Dating

ISOLATION QUARTERS, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges
cshi1a	c	PISP	Stud south wall 1 st from east	-	h/w only	55	0.95	0.51	0.295
cshi1b	c	PISP	ditto	-	h/w only	61	0.75	0.28	0.272
cshi2	c	QUAL	Joist 2 nd from south wall	-	C	64	1.13	0.32	0.222
cshi3a	c	CADN	Joist 4 th from south wall	-	C	83	0.56	0.25	0.185
cshi3b	c	CADN	ditto	-	C	82	0.63	0.39	0.184
cshi3	m		Mean of cshi3a + cshi3b	-	C	94	0.63	0.37	0.157
cshi4a	c	CYOV	Joist 5 th from south wall	-	C	61	0.66	0.51	0.214
cshi4b	c	CYOV	ditto	-	C	61	0.67	0.44	0.272
cshi5a	c	QUAL	Joist 1 st from south wall	-	C	42	1.27	0.30	0.232
cshi5b	c	QUAL	ditto	-	C	41	1.17	0.29	0.201
cshi6a	c	PISP	Rafter 2 nd from south wall east side	-	½C	131	0.55	0.38	0.266
cshi6b	c	PISP	ditto	-	C	86	0.38	0.22	0.274
* cshi6	m		Mean of cshi6a + cshi6b	-	C	131	0.55	0.38	0.260
cshi7a1	c	PISP	Rafter 5 th from south wall east side	-	h/w only	17	1.04	0.25	0.187
* cshi7a2	c	PISP	ditto	-	C	115	0.49	0.31	0.240
cshi8	c	PISP	Rafter 1 st from south wall east side	-	h/w only	47	2.02	0.62	0.228
* = CSHlx1 Site Master					C	131	0.56	0.39	0.232

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring; ¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); H/S bdry = heartwood/sapwood boundary - last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; QUAL = *Quercus alba* (white oak); PISP = *Pinus L.* (Southern yellow pine); CADN = *Castanea dentata*. (American chestnut); CYOV = *Carya glabra* (shagbark hickory)

Table 2b: Matrix of *t*-values and overlaps for same-timber means and site master

Components of timber mean **csHi3**

Sample: **csHi3b**
Last ring
date AD:

csHi3a 4.08
71

Components of timber mean **csHi6**

Sample: **csHi6b**
Last ring
date AD:

csHi6a 10.20
86

Components of site master **CSHix1**

Sample: **csHi7a2**
Last ring
date AD:

csHi6 10.71
115

Table 1c: Summary of Tree-Ring Dating

BUCK KID QUARTERS, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges
cskh1a1	c	PISP	Joist 1 st from east end	-	h/w only	43	2.17	0.87	0.270
cskh1a2	c	PISP	ditto	-	C	54	0.71	0.29	0.282
cskh2a1	c	PISP	Joist 3 rd from west end	-	h/w only	94	0.75	0.48	0.268
cskh2a2	c	PISP	ditto	-	h/w only	40	0.87	0.42	0.312
cskh2a3	c	PISP	ditto	-	C	21	0.50	0.25	0.295
cskh3	c	PISP	Joist 1 st from west end	-	C	110	1.01	0.63	0.234
cskh4a	c	PISP	Brace west side north wall	-	h/w only	82	1.28	1.26	0.347
cskh4b	c	PISP	ditto	-	h/w only	21	0.70	0.26	0.343
cskh5a1	c	PISP	Stud west wall reset	-	h/w only	55	1.23	0.55	0.285
cskh5a2	c	PISP	ditto	-	h/w only	15	0.51	0.11	0.222
cskh5a3	c	PISP	ditto	-	C	20	0.47	0.22	0.230
cskh5b1	c	PISP	ditto	-	h/w only	75	0.88	0.41	0.256
cskh5b2	c	PISP	ditto	-	C	16	0.51	0.11	0.163
* cskh5	m		Mean of cskh5a1 + cskh5b1	-	C	75	0.97	0.49	0.260
cskh6	c	PISP	Stud west wall north of door	-	h/w only	79	0.97	0.47	0.251
cskh7	c	PISP	Stud west wall south of door	-	½C	101	0.95	0.57	0.247
cskh8	c	PISP	Stud west wall south end	-	½C	88	0.80	0.41	0.284
* cskh78	c	PISP	Mean of cskh7 + cskh8	-	½C	101	0.95	0.57	0.248
* = CSHKx1 Site Master				-	½C	101	0.97	0.58	0.226

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring; ¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); h/w only = heartwood only - last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; PISP = *Pinus L.* (Southern yellow pine)

Table 2c: Matrix of *t*-values and overlaps for same-timber means and site master

Components of timber mean **csbk5**

Sample: **csbk5b1**
Last ring
date AD:

csbk5a1 12.10
55

Components of timber mean **csbk78**

Sample: **csbk8**
Last ring
date AD:

csbk7 10.54
88

Components of site master **CSBKx1**

Sample: **csbk78**
Last ring
date AD:

csbk5 8.30
75

Table 1d: Summary of Tree-Ring Dating

MAIN BARN, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges
csHg1	c	PISP	Joist 4 th from south wall east side center bay	-	C	35	1.95	1.63	0.369
csHg2a	c	PISP	Joist 8 th from south wall east side center bay	-	C	48	1.89	0.39	0.195
csHg2b	c	PISP	ditto	-	h/w only	28	1.90	0.41	0.221
csHg3	c	QUAL	Joist 11 th from south wall east side center bay	-	C	82	0.65	0.21	0.153
csHg4	c	PISP	Joist 12 th from south wall west side center bay	-	C	56	1.45	1.02	0.270
csHg5a	c	PISP	Joist 10 th from south wall west side center bay	-	h/w only	40	1.61	0.54	0.264
csHg5b	c	PISP	ditto	-	h/w only	23	0.87	0.61	0.359
csHg6a1	c	PISP	Joist 7 th from south wall east side center bay	-	h/w only	34	2.07	0.91	0.298
csHg6a2	c	PISP	ditto	-	C	7	0.64	0.09	0.221
csHg6b1	c	PISP	ditto	-	h/w only	13	1.15	0.31	0.317
csHg6b2	c	PISP	ditto	-	C	6	0.48	0.15	0.319
csHg7	c	PISP	Stud 2 nd from south in west partition wall	-	15NM	45	1.26	0.40	0.237

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring: ¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); h/w only = heartwood only - last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; QUAL = *Quercus alba* (white oak); PISP = *Pinus L.* (Southern yellow pine)

Table 1e: Summary of Tree-Ring Dating

HORSE BARN, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges
csshh1a1 c	CYOV	Joist 5 th from south wall	-	h/w only	21	0.80	0.15	0.215	
csshh1a2 c	CYOV	ditto	-	¼C	6	1.11	0.43	0.532	
csshh2 c	QUAL	Brace south wall east side	-	¼C	86	0.98	0.52	0.125	
csshh3 c	QUAL	Stud 1 st from south east wall	-	h/w only	91	1.02	0.37	0.230	
csshh4 c	QUAL	Stud 2 nd from south east wall	-	h/w only	57	1.52	0.52	0.164	
csshh5 c	QUAL	Stud 3 rd from south east wall	-	h/w only	133	0.54	0.13	0.164	
csshh6 c	QUAL	Stud 4 th from south east wall	-	h/w only	115	0.58	0.23	0.153	
csshh7 c	QUAL	Stud 1 st from east south wall	-	h/w only	31	2.32	0.37	0.095	
csshh8 c	CYOV	Joist 9 th from south wall	-	15NM	90	0.77	0.36	0.213	
csshh9 c	CYOV	Joist 12 th from south wall	-	½C	95	0.80	0.22	0.174	
csshh10 c	QUAL	Joist 14 th from south wall	-	5NMC	119	0.74	0.22	0.137	
csshh11a1 c	CYOV	Joist 13 th from south wall	-	h/w only	89	0.57	0.45	0.220	
csshh11a2 c	CYOV	ditto	-	h/w only	28	0.27	0.07	0.199	
csshh11a3 c	CYOV	ditto	-	h/w only	49	0.40	0.14	0.173	
csshh11a4 c	CYOV	ditto	-	C	11	0.55	0.10	0.170	
csshh12 c	QUAL	Door post east wall south of doorway	-	C	93	1.77	0.68	0.178	

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring: ¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); h/w only = heartwood only - last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; QUAL = *Quercus alba* (white oak); CYOV = *Carya glabra* (shagbark hickory)

Table 1f: Summary of Tree-Ring Dating

CORN CRIB, CARL SANDBURG HOME, FLAT ROCK, NORTH CAROLINA

Sample number & type	Species	Timber and position	Dates AD spanning	Sapwood complement	No of rings	Mean width mm	Std devn mm	Mean sens mm	Felling seasons and dates/date ranges
csbcc1	c	QUAL	Door post east side north wall	-	1NM	88	1.35	0.44	0.143
* csbcc2	c	QUAL	Corner post northeast	-	h/w only	48	1.89	0.35	0.134
* csbcc3	c	QUAL	Door post west side north wall	-	h/w only	53	2.02	0.59	0.126
csbcc4	c	QUAL	Stud 4 th from north end east wall	-	C	90	1.02	0.46	0.159
csbcc5a	c	QUAL	Corner post southwest	-	h/w only	58	1.29	0.33	0.147
csbcc5b	c	QUAL	ditto	-	C	56	0.93	0.21	0.122
* csbcc5	m		Mean of csbcc5a + csbcc5b	-	C	86	1.12	0.35	0.129
csbcc6	c	QUAL	Wall plate west wall bottom	-	C	30	2.78	1.04	0.157
csbcc7	c	QUAL	Stud 1 st from south west wall	-	h/w only	66	0.84	0.29	0.175
* = CSBCCx1 Site Master			-	C	99	1.40	0.60	0.124	

Key: *, †, § = sample included in site-master; c = core; mc = micro-core; s = slice/section; g = graticule; p = photograph; ¼C, ½C, C = bark edge present, partial or complete ring: ¼C = spring (last partial ring not measured), ½C = summer/autumn (last partial ring not measured), or C = winter felling (ring measured); h/w only = heartwood only - last heartwood ring date; std devn = standard deviation; mean sens = mean sensitivity; QUAL = *Quercus alba* (white oak)

Table 2f: Matrix of *t*-values and overlaps for same-timber mean and site master

Components of timber mean **csbcc5**

<i>Sample:</i>	csbcc5b
<i>Last ring</i>	
<i>date AD:</i>	
csbcc5a	$\frac{3.58}{28}$

Components of site master **CSBCCx1**

<i>Sample:</i>	csbcc3	csbcc5
<i>Last ring</i>		
<i>date AD:</i>		
csbcc2	$\frac{6.23}{45}$	$\frac{6.29}{35}$
	csbcc3	$\frac{5.53}{43}$

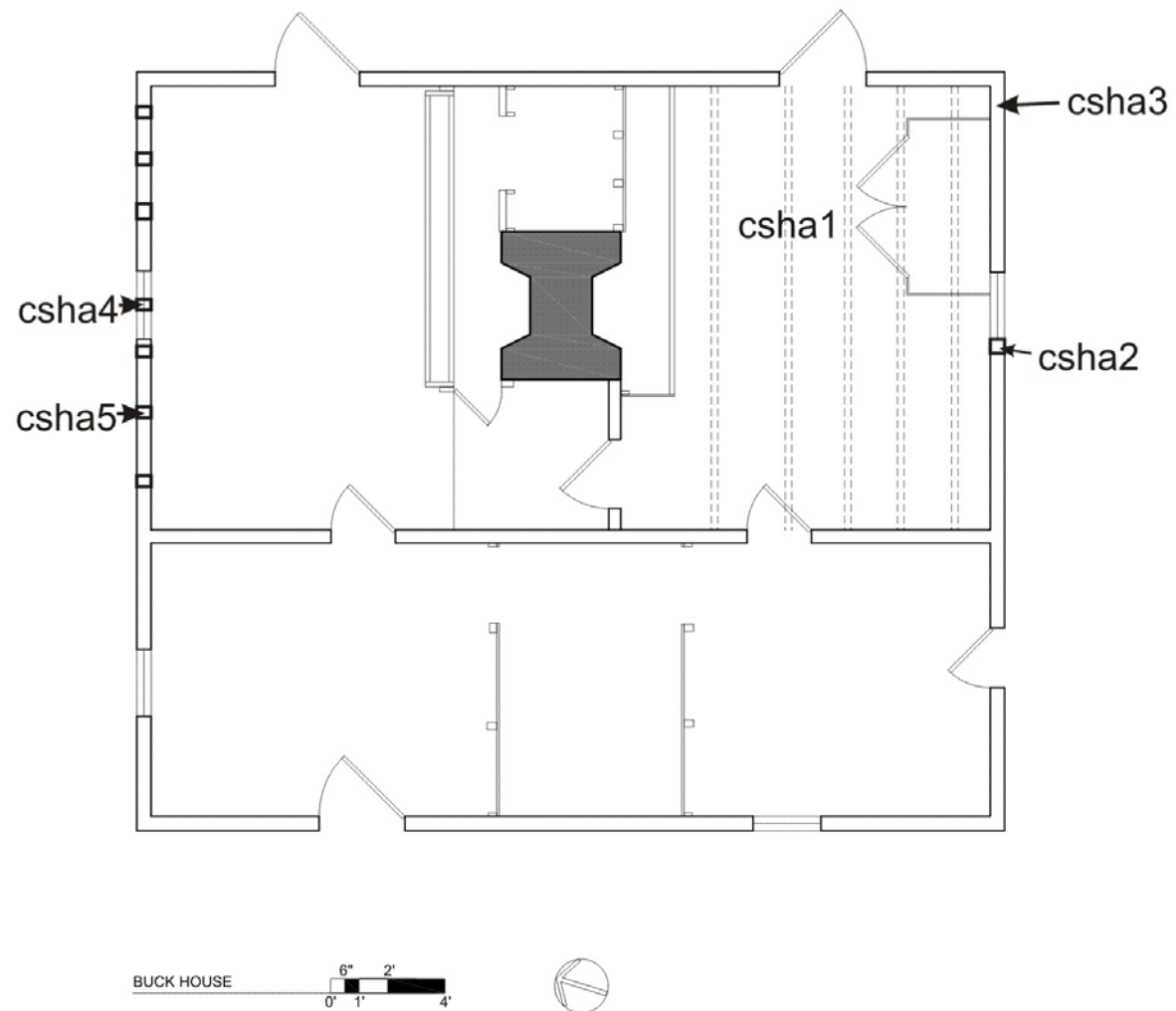


Figure 8. Drawing showing location of samples taken from the first floor of the Buck House at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)

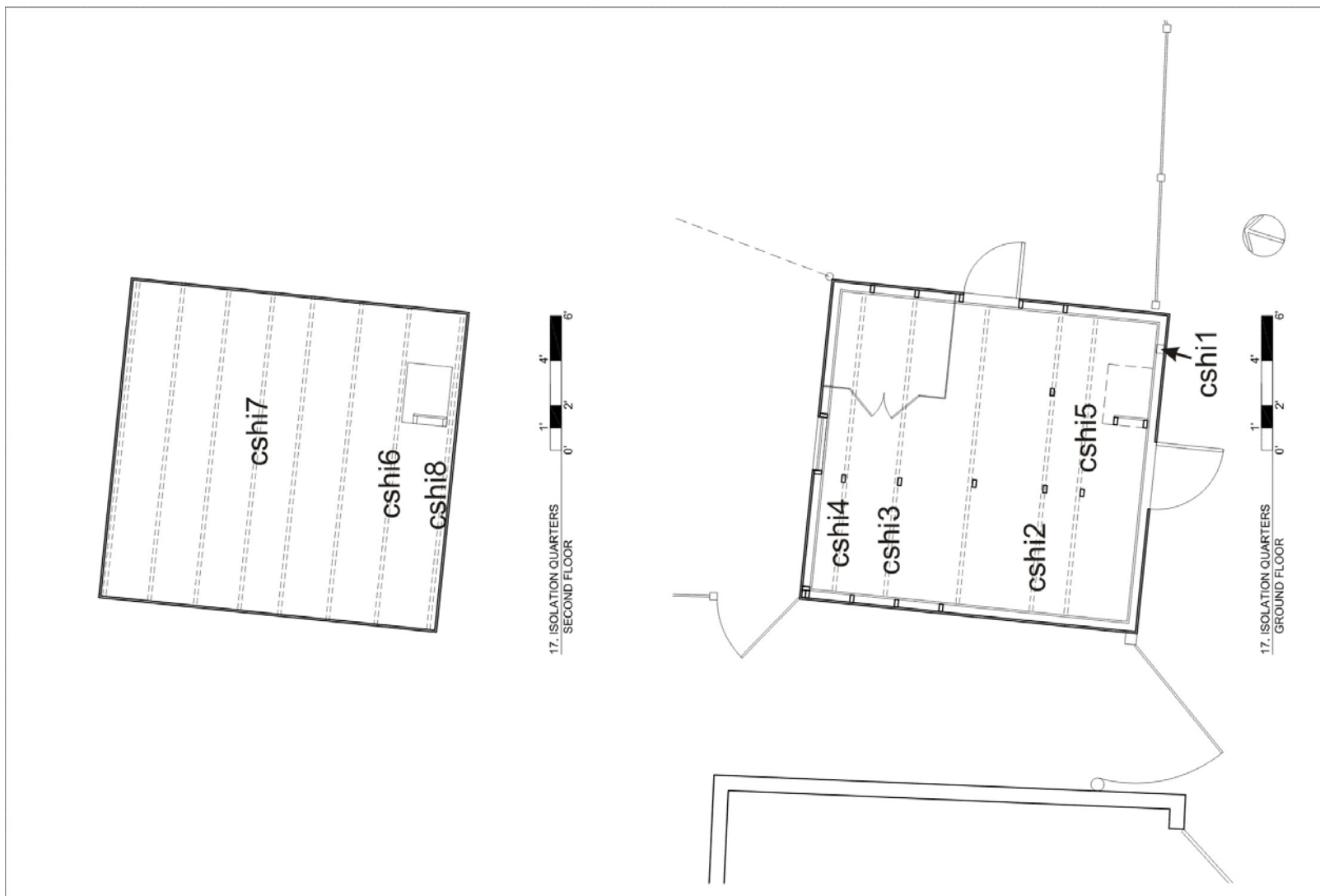


Figure 9. Drawing showing location of samples taken from the Isolation Quarters attic (left) and first floor (right) at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)

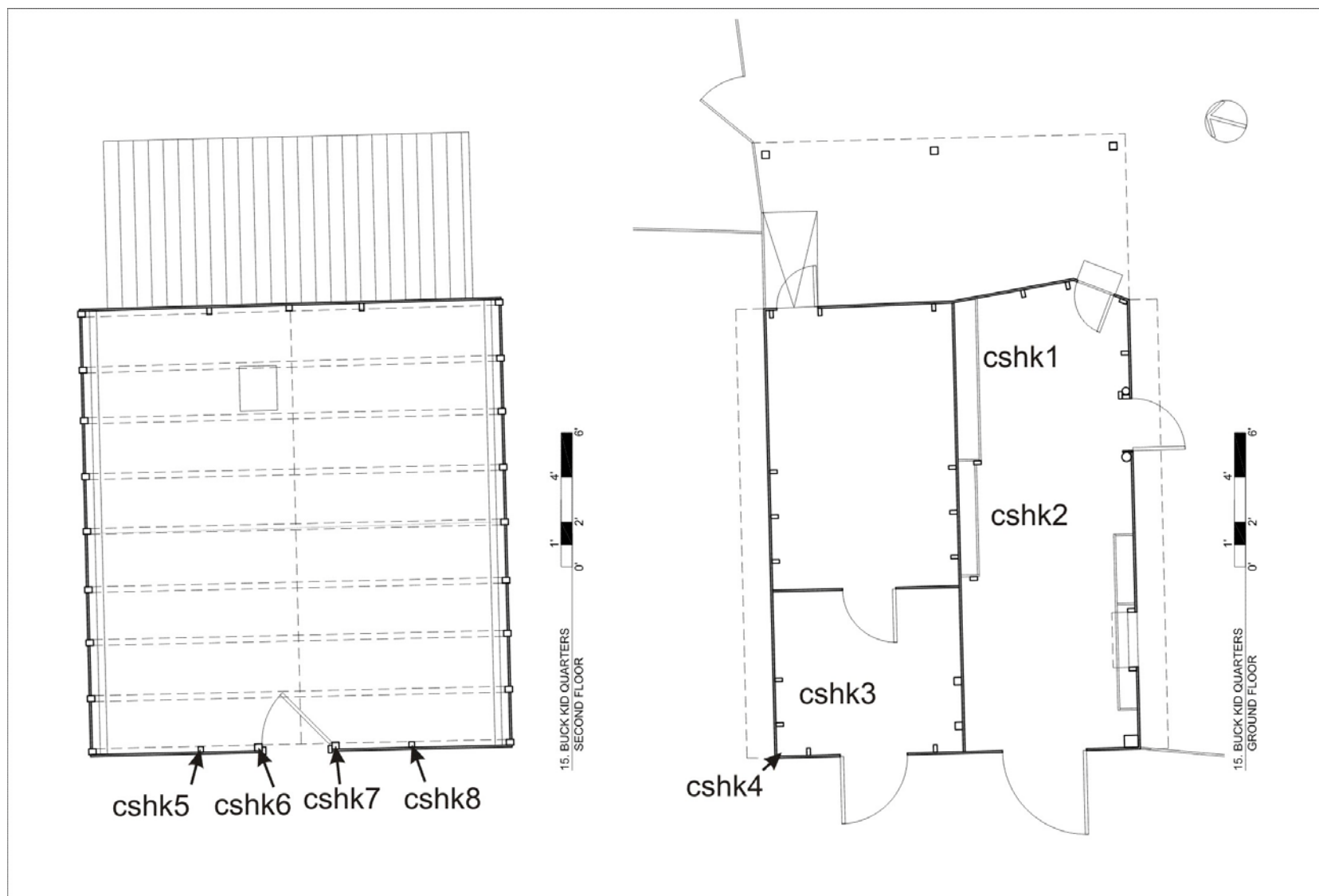


Figure 10. Drawing showing location of samples taken from the Buck Kid Quarters attic (left) and first floor (right) at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)

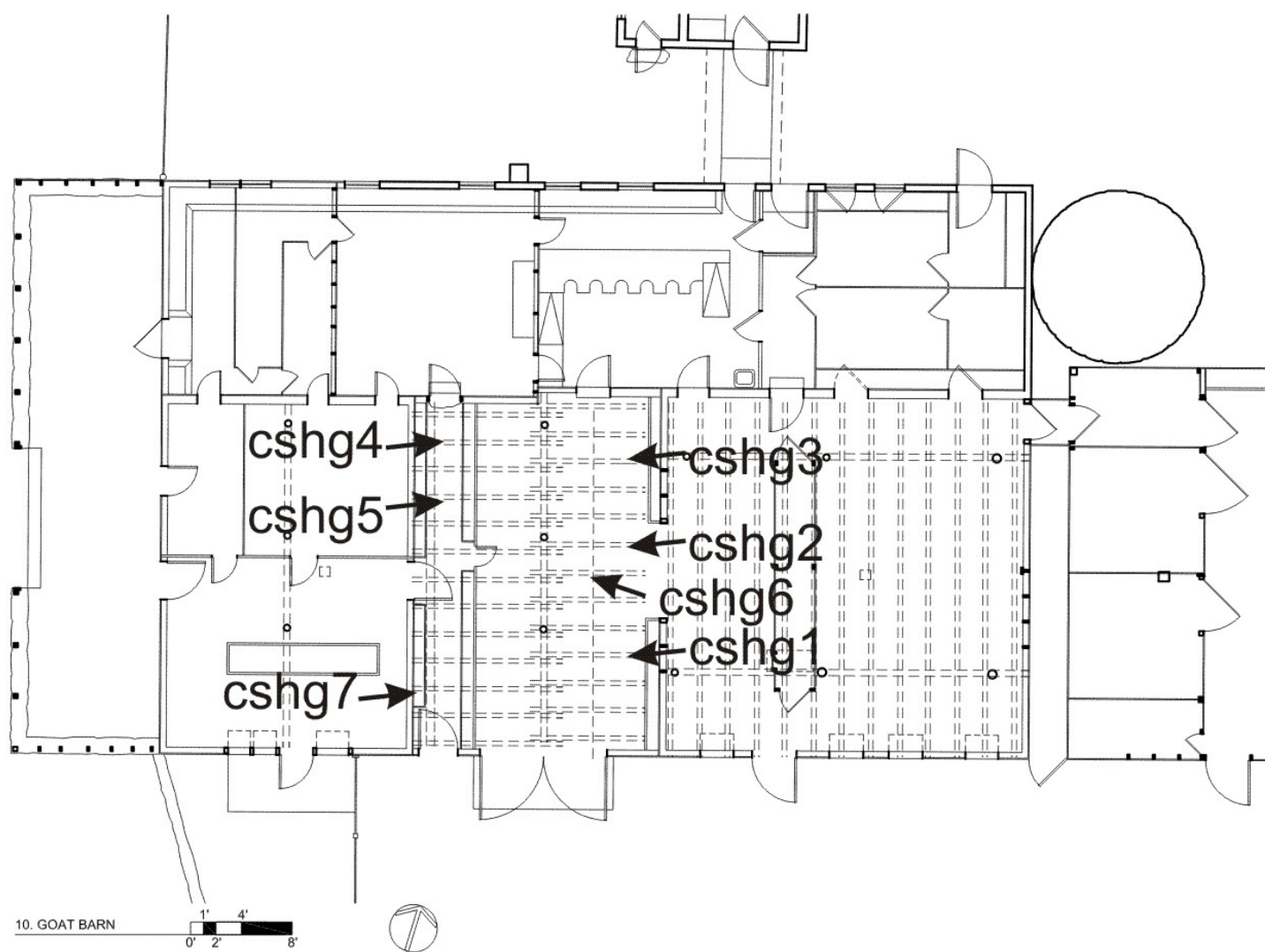


Figure 11. Drawing showing location of samples taken from the Main Barn at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)

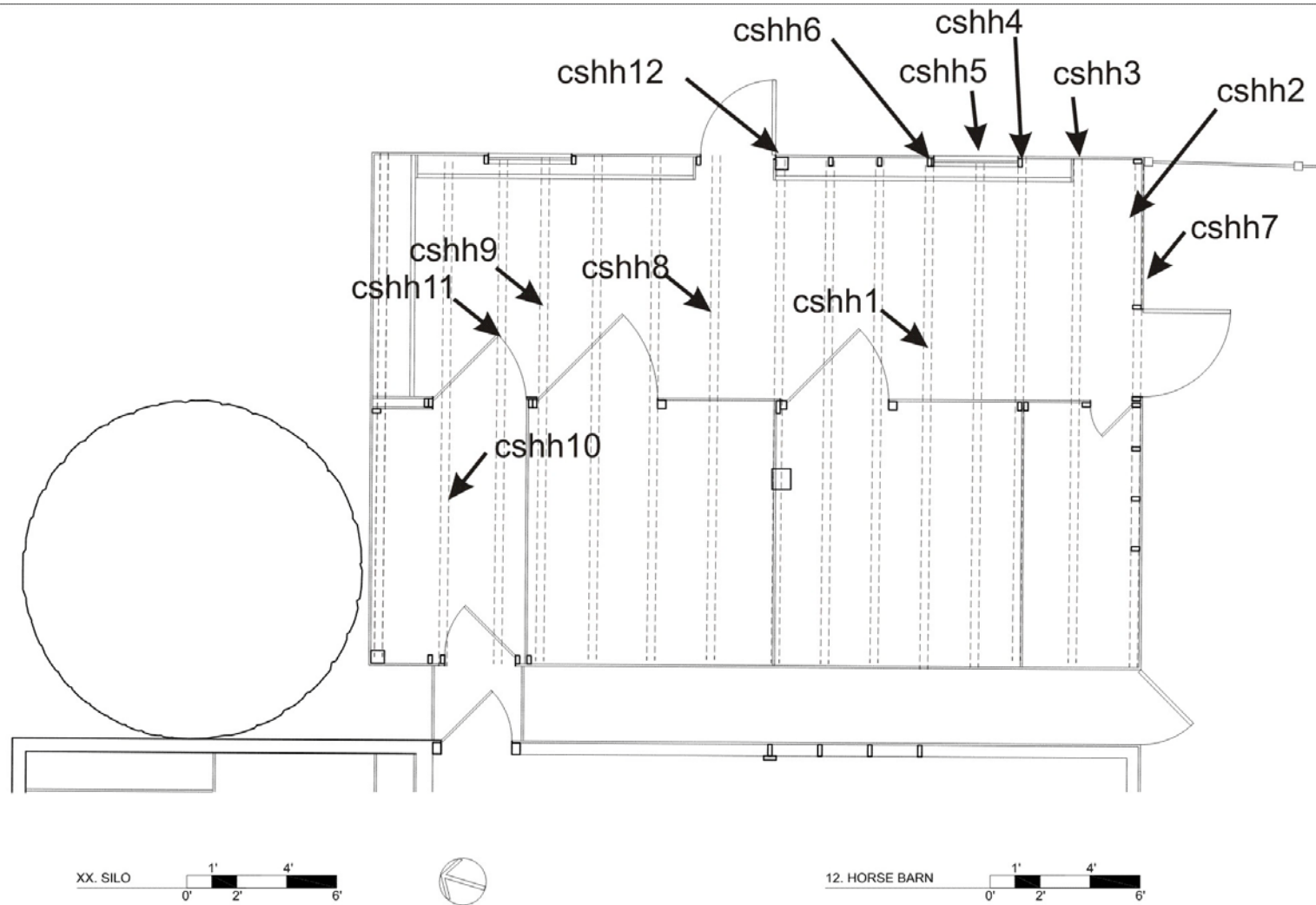
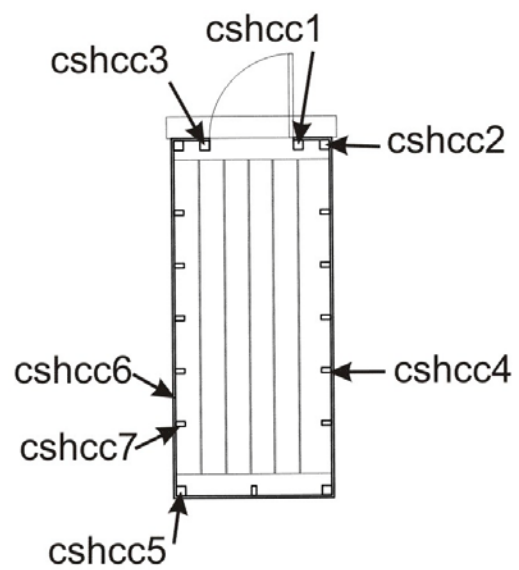
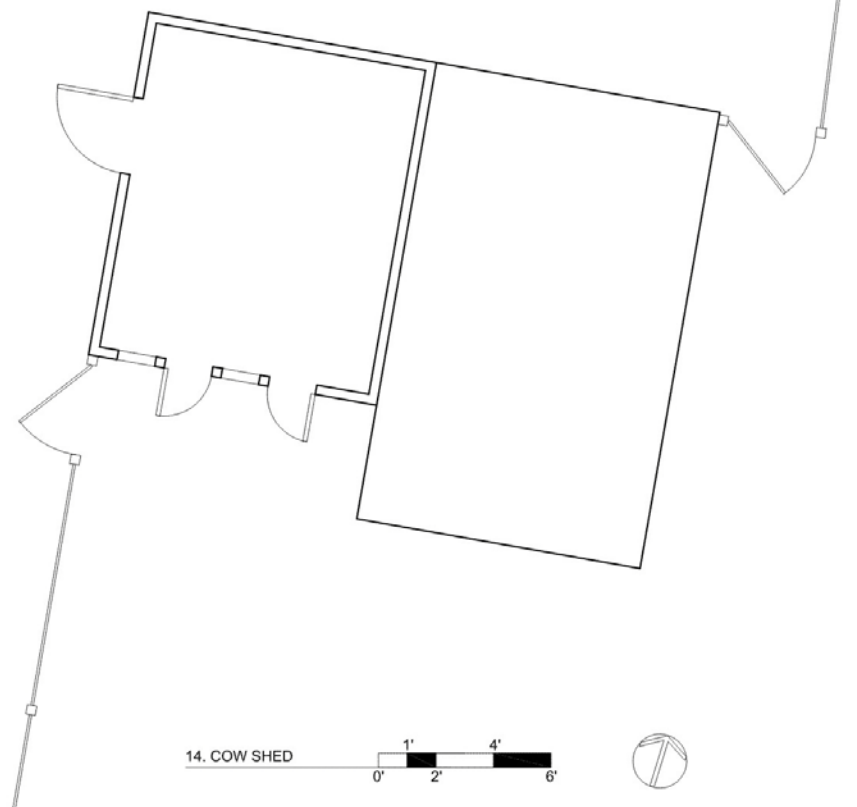


Figure 12. Drawing showing location of samples taken from the Horse Barn at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)



09. CORN CRIB

0' 1' 2' 4' 6'



14. COW SHED

0' 1' 2' 4' 6'

Figure 13. Drawing showing location of samples taken from the Corn Crib at the Carl Sandburg Home (after Joseph K. Oppermann - Architect 2011)